Quality of life in healthy old age: How it can be defined, measured and stabilized from a within-person perspective

Thesis (cumulative thesis)
presented to the Faculty of Arts and Social Sciences
of the University of Zurich
for the degree of Doctor of Philosophy

by

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Accepted in the Spring Term 2014
on the Recommendation of the Doctoral Committee:
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and Prof. Dr. Ulrike Ehlert

Zurich, 2014

ACKNOWLEDGEMENT

First of all, I thank Mike Martin for his trust, encouragement, advice, support and the possibilities he gave me to engage in academic life. My thanks also go to my colleagues at the Center for Gerontology who made my work pleasant by providing a stimulating and friendly working atmosphere. Particularly, I thank Caroline Moor for her emotional support throughout the years of my Ph.D.

Furthermore, I am greatly thankful to Stephanie Sandig, who helped me with data collection and Andrea Hänni who helped me with structuring parts of my thesis. My thanks also go to the study participants who voluntarily participated in the studies reported in this work. Without their interest in research and their willingness to talk about intimate life aspects, this work would not have been possible. I also thank the professionals attending the focus groups and the members of AGSG and Innovage for their interest in my work and their willingness to discuss it.

I cordially thank my family, Fabian and Moritz, for the happiness they bring into my life each day. I thank my parents, Kerstin and Christoph, for providing me with the skills and abilities that are needed to write a thesis. I thank Ursula, Daniel and Kerstin for their invaluable support in organizing daily life, which in fact enabled me to complete my thesis.

ABSTRACT

Quality of life in healthy old age is a central research field in gerontology due to demographical changes, increasing life expectancy and compression of morbidity. The present work aims at providing a theoretical basis on which future research can be initiated and coordinated. Therefore a new theoretical framework – the Functional Quality of Life (*f*QoL-)Model (Martin et al., 2012b) – is introduced, which describes quality of life as the interplay between resources, activities, and personal goals. Different questions that are raised by the introduction of this new conceptualization of quality of life are addressed in the present work. In four explorative studies the operationalization, the validity of the new concept, the integrability of individual quality of life determinants in the *f*QoL-model, and the predictive value of the *f*QoL-model for QoL-stabilizing processes are examined using qualitative, quantitative and participatory research methods. The findings show that professionals as well as healthy older people agree with the ideas of the *f*QoL-model and that the *f*QoL-model has good face and congruent validity. The results further reveal that it is possible to generate personalized *f*QoL-models, meaning that QoL-determining aspects of a person can be depicted in an *f*QoL-format. However, regarding QoL-stabilizing processes, the *f*QoL-model turned out to be only partly predictive. Overall, the findings indicate that the *f*QoL-model is a promising theoretical framework for empirical research as well as for practical implementations. But although the results are predominantly positive, the studies of the present work uncover potential for further developing the *f*QoL-model. Hence, a revised version of the *f*QoL-model is presented. Nevertheless, further empirical research is needed and should primarily focus on the operationalization of the *f*QoL-concept to further examine the validity and the applicability of the model.

ZUSAMMENFASSUNG

Lebensqualität im gesunden Alter(n) ist ein zentrales Forschungsgebiet der Gerontologie, einerseits aufgrund demographischer Entwicklungen, andererseits aufgrund der steigenden Lebenserwartung und der damit verbundenen Zunahme der Jahre, die bei guter Gesundheit verbracht werden. Ziel der vorliegenden Arbeit ist es, eine theoretische Grundlage zu schaffen, auf Basis derer zukünftige Forschung zu Lebensqualität im gesunden Alter(n) initiiert und koordiniert werden kann. Dazu wird das Modell der Funktionalen Lebensqualität (*f*QoL-Modell, Martin et al., 2012b) vorgestellt, welches Lebensqualität als das Zusammenspiel von Ressourcen, Aktivitäten und persönlichen Zielen beschreibt. Diese Neukonzeptualisierung von Lebensqualität wirft verschiedene Fragen auf, welche in der vorliegenden Arbeit behandelt werden. Im Rahmen von vier explorativen Studien werden unter Anwendung von qualitativen, quantitativen und partizipativen Forschungsmethoden, die Operationalisierung und die Validität des Konstrukts funktionale Lebensqualität (*f*QoL), die Möglichkeit individuelle Lebensqualitäts-Determinanten im *f*QoL-Modell abzubilden und die Vorhersagekraft des *f*QoL-Modells in Bezug auf Prozesse der Lebensqualitätsstabilisierung untersucht. Die Ergebnisse zeigen, dass Fachpersonen aus der Praxis, wie auch gesunde, ältere Menschen selbst, den Annahmen des *f*QoL-Modells zustimmen und sie deuten auf hohe Augenscheinvalidität und hohe kongruente Validität hin. Ferner zeigen die Resultate, dass individuelle Lebensqualitätsdeterminanten im *f*QoL-Modell abgebildet werden können und dass es somit möglich ist personalisierte *f*QoL-Modelle zu generieren. Hinsichtlich lebensqualitäts-stabilisierender Prozesse erweist sich das *f*QoL-Modell hingegen nur als teilweise prädiktiv. Insgesamt sprechen die Ergebnisse dafür, dass das *f*QoL-Modell ein vielversprechendes theoretisches Modell ist, sowohl für die Forschung als auch für die Praxis. Doch auch wenn die Ergebnisse mehrheitlich positiv sind, zeigen sie gleichzeitig Möglichkeiten zur konzeptuellen Weiterentwicklung des Modells auf. Darum wird eine anhand der Erkenntnisse der vorliegenden Arbeit überarbeitete Version des *f*QoL-Modells präsentiert. Weiterführende Forschung ist aber dennoch wichtig und sollte sich in erster Linie auf die Operationalisierung von *f*QoL beziehen, damit die Validität und die Anwendbarkeit des Modells weiter erforscht werden können.

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1 GENERAL INTRODUCTION

Quality of life (QoL) is of growing interest in psychological and medical research, which is apparent from a constant increase of publications on QoL in the last four decades (Fernández-Ballesteros, 2011). Like QoL, the concept of healthy old age has gained importance in the previous years due to demographic developments of increased life expectancy and compression of morbidity. Both terms have widely been explored and they have been defined in substantially different ways. Thus, dealing with QoL in healthy old age immediately raises the fundamental questions: What is QoL, what is healthy old age and how can they be meaningfully defined? Those aspects of QoL and healthy old age that are important for the present work are illustrated in Figure 1 and are outlined in the subsequent chapters of this general introduction.

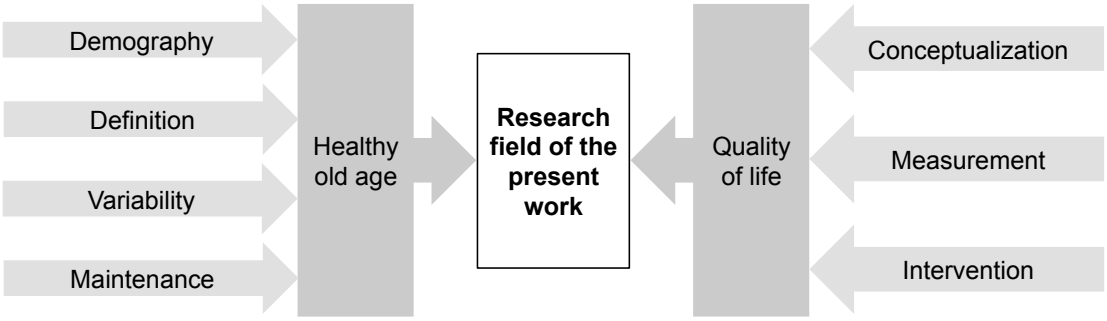

Figure 1. Research field of the present work

1.1 HEALTHY OLD AGE

1.1.1 Demographical developments in Switzerland

Regarding the population structure in Switzerland, several developments are observable in demographic data. First, populations are growing worldwide, and in Switzerland there has been an increase, on average, of 0.8 percent a year between 1860 and 1997 (Swiss Federal Statistical Office, 1998) and between 0.7 and 1.1 percent a year since 2001 (including migration, Federal Statistical Office, 2013a). Second, scenarios regarding population development that were calculated for Switzerland predict a growth of people aged over 65 of

134 percent until 2060 and in the same interval an increment of the proportion of older people relative to the entire population from 17 to 28 percent (Federal Statistical Office, 2010, high scenario). In line with this, the old-age dependency ration will increase in the upcoming 50 years from 27.5 to 53.1, meaning that – given that retirement age does not change – a small number of working people will confront a great number of non-working people (Federal Statistical Office, 2010, middle scenario). Third, longevity has increased. In Switzerland the life expectancy for a newborn has steadily increased from 72 (men)/ 79 (women) in 1981 to 81 (men)/ 85 (women) in 2012. Thus, the remaining life expectancy of a 65-year-old today is, on average, 19 (men)/ 21 (women) years (Federal Statistical Office, 2013b). Although these statistics are solely based on Swiss data, similar developments and trends are observable in other western countries (e.g., European Commission, 2011).

These developments and predictions reveal that old age is a phase of life that lasts, on average, for two decades and that it will be experienced by an increasing number of people, more precisely the baby-boomer generation that will enter retirement in the upcoming years. How these additional years after retirement can be spent with high QoL has been discussed in politics (e.g., Osmond, 2010) and research (e.g., Kurz, Clare, & Lautenschlager, 2013), mostly under the keynote of "adding life to years" (Brenner & Shelley, 1998). An increase in illness and care dependency had been predicted, but are refuted by several studies showing that morbidity declines to the same extent as life expectancy increases ("compression of morbidity", see Fries, 2000). Together with the projected demographic changes, this means that a growing number of older people will spend an increasing number of years disease-free.

1.1.2 How to define healthy old age?

The origin of examining healthy old age might be the human need to know how one can reach a healthy and high age. Several medical (case) studies have tried to approach the phenomenon of longevity by examining the characteristics of extremely old persons, so called supercentenarians (see Willcox et al., 2008; Schoenhofen et al., 2006). Similar to the identification of unique characteristics, gerontopsychological research differentiates between older people with many and high levels of resources and people with few and low levels of resources in order to determine the factors of a good life. However, compared to related terms such as successful (e.g., Baltes & Baltes, 1993; Wahl et al., 2013), normal (e.g., Jack, Petersen, & Xu, 1997), effective (Curb et al., 1990) or productive aging (e.g., Kerschner & Pegues, 1998), healthy old age seems to be only one possibility among others to separate

well- from under-resourced individuals. The utility of these concepts has been questioned not only because all of these terms include the risk of failing and thus delegate the responsibility for a satisfying aging process to the individual (e.g., Maroso, 2001; Quéniart & Charpentier, 2012), but also because they have inconsistently been defined and operationalized (e.g., Willcox et al., 2008).

The operationalization of healthy old age that can be found in empirical studies vary substantially but most of them pertain to physical circumstances, e.g., having good visual functioning and having good cognitive abilities (Quigley, Andersen, & Müller, 2012), living independently (Bain et al., 2003; Rabbitt et al., 2004), or simply feeling healthy (Beaumont & Kenealy, 2004). However, there appears to be a clear agreement in literature that neurodegenerative diseases (e.g., Alzheimer's) preclude the notion of healthy old age (e.g., Mayeux, Small, Tang, Tycko, & Stern, 2001). In contrast to this focus on physical aspects, the World Health Organization (WHO, 2006, p.1) defines health as a "state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity". Even though there are some critical voices denoting this definition as outdated and impractical (Huber et al., 2011), it makes it clear that health is more than physical integrity. In line with that, asking older people themselves what others might mean when they say they are in good health reveals that about 40 percent understand it to be the ability to perform usual activities of daily life, a third the general feeling of wellbeing and only a fifth the absence of symptoms (Strain, 1993). Thus, it is surprising that research on healthy aging mainly addresses the discovery of risk and protective factors of physical diseases typically occurring with advancing age (e.g., Rose, et al., 2003). However, the advantage of the availability of several definitions formulated from different perspectives (scientists, laypersons and organizations, e.g., WHO) is that the operationalization can follow the definition that fits best with the particular research purpose.

Since the present work is about QoL from a subjective perspective, it follows the broad health definition of the WHO, which is – as shown above – in line with the health definition of older people themselves. According to the WHO, healthy old age can be defined as the overall perception of feeling well regarding physical, mental and social life domains. This implies that old age can be perceived as healthy even though a chronic disease or a certain degree of dependency is present. This seems appropriate since multimorbidity, defined as the coexistence of two or more chronic conditions, is a common medical condition in old age (Marengoni et al., 2011). Consequently, it is also possible that an individual feels healthy despite a severe illness, e.g., cancer or dementia, since he/she feels mentally and socially

healthy. This obviously counters the apparent consensus in literature that degenerative disease excludes healthy aging, but it corresponds well with the contemporary understanding of health as the ability to produce it (Huber et al., 2011). Thus, establishing a feeling of health is possible at all ages, irrespective of the particular living circumstances. Considering the diversity of living circumstances in healthy old age a high degree of heterogeneity among older people regarding the composition of personal and contextual aspects that determine a person's perception of his/her health is to be expected.

1.1.3 Interindivdiual variability in healthy old age

Individuals differ in personal characteristics as well as in the circumstances in which they live at all ages. This becomes even more accentuated in old age when biological and biographic influences become more dominant. This implies that psychological phenomenons are ergodic, meaning that aggregated results obtained from large sample sizes are not automatically transformable on individuals (Hamaker, 2011). However, age-related research has mostly been aimed at discovering regularities between individuals (compare, e.g., longevity research mentioned above). And in fact, the systematic consideration of idiosyncratic aspects would imply a certain contradiction to traditional analytic methods of aggregating individual data on a higher level in order to deduce general statements about old age. But as in many fields of daily life where, e.g., consultants, practitioners or teachers try to figure out as many details about a particular person and his/her living conditions as necessary to optimally support the individual, following an individualized approach is nothing new in research, but has always been a central topic in several realms, such as nursing sciences (Fine, 2013), health promotion (Caspari, 2007), rehabilitation (Clare et al., 2009) or psychotherapy (Frisch, 2000). Adapting the definition of individualization by Caspari (2007) to healthy old age, individualization can be understood as the adjustment and alignment of information and interventional measures to the preferences, needs and living conditions of the individual on the basis of previous assessments. In fact, interventions that follow such an individualized approach proved to be superior to the application of standardized interventional measures (Strecher, 1999). With respect to effectively supporting healthy older people in leading a satisfying life, it is thus important to tailor interventions to the particular situation of the individual. But implementing individualized interventions also requires individualized assessments of effectiveness. Regarding this, advances in statistical methods have already been made (e.g., Sniehotta, Presseau, Hobbs, & Araújo-Soares, 2012).

1.1.4 Maintenance of health in old age

Now that an increasing number of older people are reaching high age and now that most people entering retirement are equipped with good resources, it is important to examine not only the predictors of health but also the factors and processes that predict the maintenance of individual resources. However, the discussion about how a society can provide care for the increasing number of older people who have suffered a loss in resources still dominates the discussion in public as well as in research. For instance, the WHO strategy and action plan for healthy ageing in Europe (2012) mainly focuses on the avoidance of negative circumstances (e.g., noncommunicable diseases, mental disorders, injuries, infectious disease) and, thus, neglects the promotion and maintenance of positive life circumstances that are given in the majority of young olds. Due to this problem-oriented focus, research in the field of healthy old age often refers to particular symptoms or illnesses. Hence, current research and assumingly also future research (according to the WHO strategy plan) do not sufficiently address the growing number of older people who are in possession of high resources. Thus, in contrast to previous research that was strongly focused on the avoidance of resource declines and on the rehabilitation of resource losses, future research should increasingly address the timely maintenance and stabilization of resources an individual has in phases of good health and high QoL.

1.2 QUALITY OF LIFE

1.2.1 Conceptualization of QoL in age-related research

QoL has a remarkably long and multifaceted history of research. In the last decades it has been discussed and examined in many different disciplines, such as philosophy, economy, sociology, medicine and psychology. The diversity of involved academic disciplines is still expanding; biological sciences (e.g., genetics), in particular, are more and more concerned with the quality of human lives (Raat et al., 2010). But QoL-research has not only taken place under the term QoL, but often also under related concepts such as happiness, subjective wellbeing (Diener & Diener, 1996), psychological wellbeing (Ryff & Keyes, 1995) or life satisfaction (Neugarten, Havighurst, & Tobin, 1961; Diener, Emmons, Larsen, & Griffin, 1985). Furthermore, different subterms have been established over time, e.g., individual QoL (Browne et al., 1994) or subjective and objective QoL (Cummins, 2000; Diener & Suh, 1997). Thus, QoL-research is an enormous field of research that is still growing.

Due to the fact that QoL has been examined from many different disciplinary points of view, there are various QoL-definitions to be found in the literature. Since gerontology is per definition a multidisciplinary research field, the same is true for age-specific definitions of QoL. These descriptive definitions of QoL in old age, of which a selection is presented in Table 1, are diverse and cover a wide range of QoL-relevant aspects (e.g., health, wellbeing, feeling connected, cognitive style, beliefs, values, needs, self-perception, expectations, perception of past and future, income, employment, education, social relations; and interactional processes between the person and the environment). The WHO QoL-Definition (1997) is probably the most cited one, even though it is not age-related.

Table 1. Selection of age-specific QoL-definitions worded by scientists (citations)

Authors	Age-specific QoL-definition
Bowling & Gabriel (2004)	Quality of life, then, is a multidimensional collection of objective [income, employment, housing, education, and other measures of living and environmental circumstances] and subjective areas of life [social and emotional wellbeing, happiness and life satisfaction], the parts of which can affect each other as well as the sum. It is also a dynamic concept, reflecting values as they change with life experiences and the process of ageing. (p. 3/4)
Bowling, Banister, Sutton, Evans, & Windsor (2002)	Quality of life theoretically encompasses the individual's physical health, psychosocial well-being and functioning, independence, control over life, material circumstances and the external environment. It is a concept that is dependent on the perceptions of individuals, and is likely to be mediated by cognitive factors. (p. 355)
Browne et al. (1994)	Quality of life […] is a dynamic interaction between the external conditions of an individual's life and the internal perceptions of those conditions. (p. 235)
Hyde, Wiggins, Higgs, & Blane (2003)	Quality of life can, therefore, be assessed by the degree to which the requirements for all four domains [control, autonomy, self-realisation and pleasure] are satisfied. (p. 188)
Lawton (1991)	Quality of life is the multidimensional evaluation, by both intrapersonal and social-normative criteria, of the person-environment system of an individual in time past, current, and anticipated. (p. 6)
Register & Herman (2006)	[…] quality of life is a cumulative process that is generated through an ongoing series of specific connections and disconnections that result from interactions with the forces and processes people encounter in their daily life. (p. 340/341)
Svensson (1991, as cited in Svensson, 1996)	[…] the global evaluation of the fulfilment of what is by the individual considered to be meaningful contents in life in light of former, present and future experiences and expectations of life. (p. 258, p.112)
Walker (2005)	[…] quality of life should be regarded as a dynamic, multifaceted and complex concept which must reflect the interaction of objective, subjective, macro-, micro-, positive and negative influences. (p. 5)
WHO (1997)	[…] quality of Life as individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment. (p.1)

However, these definitions are all worded by scientists. When asking older people themselves how they personally define their QoL, they mostly enumerate a certain number of determining life domains (Table 2). This may be the consequence of the asking format (e.g., What things give your life quality?, Farquhar, 1995), but comparing their answers in Table 2 with the QoL-definitions of experts in Table 1 indicates that subjective and scientific definitions are divergent, at least in their degree of abstractness. As it is known from empirical studies, self-reported QoL can deflect from the estimation of a third person (e.g., Moyle, Murfield, Griffith, & Venturato., 2011). Thus, conceptualizing QoL validly becomes even more challenging when considering not only different perspectives of experts but also those of the target group itself.

However, in light of the long and interdisciplinary history of QoL-research and the fact that researchers have operationalized QoL according to their particular research purpose for many years, the achievement of a general agreement about the definition of QoL is unlikely. And QoL remains a construct with a very wide range of operationalization despite the valuable endeavors of different authors to bring order to the conceptual confusion (e.g., Dijkers, 1999; Brown, Bowling & Flynn, 2004; Fernández-Ballesteros, 2011).

Table 2. Selection of empirical findings resulting from studies about subjective QoL-definitions of healthy older people (citations)

Authors	Subjective QoL-definition
Beaumont & Kenealy (2004)	The most frequently mentioned factors, and those accorded greatest importance, were related to family, health and home. Also highly rated were emotional wellbeing, independence (freedom of choice) and mobility. To those for whom it was relevant, a partner and companionship were of great importance. (p. 764)
Browne et al. (1994)	The emphasis for the elderly […] centred on family (mentioned by 89% of the sample), social and leisure activities (95%), health (91%), living conditions (80%) and religion (75%). (p. 240)
Brown & Flynn (2004)	Despite the variety of methods used, however, the components put forward were remarkably consistent. These were family and other relationships/contact with others, emotional well-being, religion/spirituality, independence/mobility/autonomy, social/leisure activities, finances/standard of living, own health, health of others. (p. 87)
Farquhar (1995)	The results also show that, for older people living at home, there is more to quality of life than health. Indeed it appears from these initial questions [z.B. What things give your life quality?] that family relationships, social contacts, and activities are as valued components of a good quality of life as general health and functional status. (p. 1445)
Fliege & Filipp (2000)	Content analyses resulted in 28 categories that are united into 5 domains (personal resources, social resources and interaction, activity, material and environmental resources, abstract definitions). (p. 307)

1.2.2 Theoretical models of QoL

Compared to the enormous number of publications in QoL-research there are relatively few theoretical frameworks. Consequently, Bowling and Gabriel (2004) criticized the lack of theory-driven research and demanded well-funded theoretical models. A selection of QoL-models that were developed based on conceptual considerations (and not statistical analysis, for an example see Bowling et al., 2002) is presented in Table 3. All of them were explicitly introduced as QoL-models (for this reason well-established models such as Selective Optimization with Compensation by Baltes and Baltes (1990), assimilative and accommodative processes (Brandtstädter, 2007) or primary and secondary control (Schulz & Heckhausen, 1999) are not included in Table 3) and are of a general character, meaning that they were not developed to describe QoL in a special population (e.g., old age, cancer patients, dementia). But the authors ask different questions. Campell and colleagues aim to how satisfaction judgments are made, Sprangers and Schwartz focus on the question of how high QoL can be achieved despite adverse living circumstances, and Ruta and colleagues address the question of how the gap between actual and desired capabilities can be conceptualized. However, they all describe QoL as the result of a subjective evaluation process that is determined by the subjectively perceived gap between actual and desired living conditions. Theoretical models that were explicitly developed to describe QoL in healthy old age are introduced in the subsequent chapters.

Table 3. Selected theoretical models of QoL (not age-related)

Authors	Model description
Campell, Converse, & Rodgers (1976)	The model refers to the assumption of Kurt Lewin, that experience is the consequence of an interaction of the individual with its environment. The model integrates objective attributes of the environment that are individually evaluated depending on how the individual perceives them and against which standard he/she valued them (e.g., aspiration level, expectation, values, needs, reference groups). The result of this multifaceted evaluation process can then be described and measured as domain specific satisfaction judgments. This evaluation process is influenced by personal characteristics (e.g., personality, demographics, past experiences).
Sprangers & Schwartz (1999)	The model of response shift encompasses four central components: Catalyst, antecedents, response shift and perceived QoL. Catalysts are critical life events that trigger changes in the perceived QoL. Antecedents pertain to stable characteristics of a person that determine how these changes are evaluated. And response shift describes three processes that ensure high perceived QoL despite the negative influence of catalysts: 1) recalibration of internal standards, 2) adjustment of the importance of QoL-constituting elements, 3) redefinition of the construct QoL.
Ruta, Camfield, & Donaldson (2007)	The model is based on the definition of QoL as the gap between capability and expectation. Objective life aspects (e.g., income) are subjectively evaluated regarding their valued capability for the individual. An optimal fit between capabilities and expectations is supposed to result in cognitive homeostasis. Using the analogy of a spring, a wide gap between capability and expectation stretches the spring and the more the spring is stressed the lower the QoL is.

1.2.2.1 The quadripartite model of QoL (Lawton, 1983)

The quadripartite model by Lawton is probably the most often cited and used theoretical framework in age-related research (e.g., Becker, Kruse, Schröder, & Seidl, 2005). According to Lawton, QoL encompasses all facets of a person's life including behavior, experiences and environment. Lawton divided these facets into four QoL-domains: Behavioral competence, psychological wellbeing, perceived QoL and objective environment. Behavioral competence describes the upper limit of performance in health-related, functional, intellectual, cognitive and social resources (operationalized through the actual behavior of an individual, e.g., activities of daily living, mini mental state examination, Lawton, 1991); psychological wellbeing includes the subjective evaluation of inner experiences (operationalized through neuroticism, happiness, positive affect and gap between current and intended target states); perceived QoL refers to the cognitive evaluation of different life domains (operationalized with satisfaction judgments); and objective environment entails objective indicators (operationalized through, e.g., infant mortality, gross domestic product, unemployment). Even though these four sections partly overlap (e.g., environmental conditions are likely to influence individual behavior), Lawton assumed and showed in empirical studies that they are widely independent from each other. Hence, he concluded that this independency is responsible for the relative stability of QoL over time, because changes in one part do not influence the others significantly and thus do not destabilize the system. Due to its comprehensive character, the quadripartite model provides orientation in an extensive research field. However, since it describes QoL more as an umbrella term than as an independent and delimitable construct, it contributes little to conceptual clarity.

1.2.2.2 QoL in the sense of wellbeing, meaning and value (Sarvimärki & Stenbock-Hult, 2000)

Starting with the question of which aspects unconditionally need to be considered when talking about QoL, Sarvimärki and Stenbock-Hult conclude that wellbeing, sense of meaning and value are inevitably required for the perception of high QoL. According to the authors, wellbeing includes satisfaction with different life aspects (e.g., health, living area or economic situation), sense of meaning describes the intelligibility and manageability of daily life, and value (or self-worth) entails the self-perception of being appreciated and needed as a person. The three constituent QoL-components are operationalized with existing instruments such as the sense of coherence test (by Antonovsky) or self-esteem scale (by Rosenberg). Wellbeing,

sense of meaning and self-worth, unified as QoL, are determined by external (biophysical and sociocultural environment) and intrapersonal conditions (health, functional capacity, coping, personality). This triangular model of QoL could provide a helpful framework for research but it has not yet been fully operationalized or empirically validated.

1.2.2.3 Theory of generative QoL (Register & Hermann, 2006)

With the theory of generative QoL, Register and Hermann equate QoL with the construct of connectedness, which describes a feeling of security and being needed. Hence, the authors understand QoL as the result of a cumulative process, which is characterized by an ongoing series of feeling connected and disconnected. Connectedness is determined by proceedings and events an individual encounters in daily life and is thus the product of the individual's perception of his/her ongoing interaction with the environment. The model contains six types of connectedness (metaphysical, spiritual, biological, interpersonal, contextual and societal), which are also connected to each other. Similar to the theory of Sarvimäki and Stenbock-Hult (see previous chapter), the theory of generative QoL is still in an early stage of development and has not yet been operationalized.

As the comparison of the three non-age-related QoL-models presented in Table 3 has already suggested, all three age-related QoL-theories understand QoL as something an individual subjectively perceives. But whereas the model of Register and Hermann conceptualizes QoL as a holistic construct that can be expressed on a single dimension ranging from high to low connectedness, the other two models define QoL as a construct that is determined by multiple, not summable dimensions. However, similar to the former three models, the latter three also illustrate that researchers are basically free to define QoL according to their own understanding. In this context it is also remarkable that all three models define and operationalize QoL with the aid of existing psychological concepts and measures. This means that the need for conceptual clarification and operationalization is not really met by the introduced theoretical models but displaced to other concepts, e.g., connectedness.

However, as has been illustrated by the previous chapters, there are age-related QoL-theories available. Thus, the absence of theory-driven QoL-research cannot simply be reduced to a general lack of QoL-models, but rather to a lack of systematic examinations and validations of the proposed models and probably also to the willingness of researchers to base their research questions on theoretical frameworks.

1.2.3 Assessing QoL

Consistent with the lack of a generally accepted conceptualization of QoL, different operationalizations of QoL exist. In general, three types of instruments can be distinguished: Disease-specific, generic, and a third type that is here called *general* QoL-instruments. The former two types, disease-specific and generic instruments, are often referred to as health-related QoL-measures and focus mainly on how poor health affects the subjective perception of QoL. Whereas disease-specific instruments focus on specific impairments, physical conditions or disease, e.g., visual functioning (NEI VFQ-25, Sawada, Yoshino, Fukuchi, & Abe, 2012), multimorbidity (FQOLM, Holzhausen, Kuhlmey, & Martus, 2010), cancer (EORTC, Waldmann, Pritzkuleit, Raspe, & Katalinic, 2007), or dementia (QUALID, Weiner et al., 2000), generic QoL-instruments assess QoL as closely related to health or functional status, albeit not with a specific focus on certain illnesses or conditions (e.g., SF-36, Ware & Sherbourne, 1992; NIP, Hunt, McEwan, & McKenna, 1985; SIP, Bergner, Bobbitt, Carter, & Gilson, 1981). In contrast to health-related instruments, *general* QoL-measures adopt a broader perspective of QoL, in which health is likely to be an important but not the only dimension of QoL. Although there is a considerable number of age-specific QoL-measures (Garratt, Schmidt, Mackintosh, & Fitzpatrick, 2002), comparatively few *general* measures have explicitly been developed in order to assess *general* QoL in healthy age. Still, *general* QoL-measures have recently gained importance due to a growing consensus among researchers that QoL goes beyond health (e.g., Walker, 2004; Netuveli & Blane, 2008). However, a generally accepted and binding operationalization of QoL in healthy old age is lacking, but its existence would be conductive for comparing further research results and making general statements about the characteristics and course of QoL in healthy old age.

1.2.4 Influencing QoL through interventions

QoL is widely used as a central outcome measure in medical and psychological intervention research. Many studies testing the effectiveness of certain interventions or treatments, e.g., exercise (Tamari et al., 2012), home visits (Niemela, Leinonen, & Laukkanen, 2012), environment (Szanton et al., 2011) or music (Lee, Chan, & Mok, 2010), use QoL as an indicator for changes in the overall situation of an individual. In general, intervention studies differ widely in their operationalization of QoL, but in medical studies QoL is often assessed with SF-36 (Ware & Sherbourne, 1992), which is a generic health-related QoL measure that primarily assesses the subjective perception of functional impairments.

Reading through the publications reporting the effectiveness of interventional studies reveals three characteristics of current intervention research. First, most interventional studies contain interventions whose correlation with QoL are likely but not yet entirely proven, e.g., improving specific cognitive functions, training in social competencies or enhancing perception of control (see Wahl & Tesch-Römer, 1998; Cooper et al., 2012). Only a few interventions are directly targeted at improving QoL, meaning that they explicitly address presumed QoL-determinants (e.g., Quality of Life Therapy (QOLT), Frisch, 2000). Second, interventions are only partially customized, meaning that interventional measures are equally recommended to all members of a certain population and ideographic particularities of an individual are thus not fully considered (e.g., Clark et al., 2012). And third, the bulk of interventional studies are targeted at improvements of QoL rather than at the maintenance and stabilization of what an individual already has. In sum, it can thus be said that most age-specific interventions as they can be found in literature today do not sufficiently take into account the great heterogeneity among older people and they largely neglect to support those older people with the maintenance of their current status who are still equipped with high resources.

1.3 QUALITY OF LIFE IN HEALTHY OLD AGE

Overall and as the previous chapters illustrated, examining QoL in healthy old age is a challenging task since the research fields of QoL and healthy old age are both extensive. However, taking the previous chapters into account, it becomes apparent that it is worth dealing with QoL in healthy old age. This is not only because there is a need for conceptual clarifications but also because an increasing number of older people will spend their age in good health. The relevance of research on QoL in healthy old age is also emphasized by the European Framework Program for Research and Innovation (Horizon 2020), in which one section (Health, Demographic Change and Wellbeing) is devoted to interventions that aim at supporting older people in keeping their health.

As explained in the preceding chapters, research on healthy old age as well as research on age-related QoL do not systematically integrate the specific characteristics of an individual's living situation, even though there is growing awareness that aggregated data is not necessarily representative for individuals (Hamaker, 2012; Martin & Moor, 2012). Since it is unlikely that two persons define their QoL with exactly the same parameters, this interpersonal variability needs to be well reflected in definitions and even more in

operationalizations of QoL. One of the central goals of further research must therefore be the (further) development of theoretical frameworks and assessment measures that allow an equally valid description of QoL for each individual. This should happen with a parsimonious number of elements, that are indeed standardized but that can be individually combined and defined regarding their content. On the basis of such a theoretical model, it would be possible to create as many individualized QoL-models as there are members of a certain population. A theoretical model that is well examined and validated is also highly important for the guidance and organization of research in the field of QoL in healthy old age in the next decades. It would help to create a common basis on which future research can be initiated and regarding which future empirical results could be compared.

Going further with this individualized perspective implies that interventions targeted at the QoL of healthy older people should refer to the unique life situation of the particular individual. With a theoretical model as it is proposed above, it would be possible to individually tailor information and interventions to the specific needs, preferences and goals of healthy older people. However, healthy old age as it is defined in chapter 1.1.2 is a life phase with high resources. Intervention research in this field should therefore focus on the maintenance rather than on the improvement of these already high resources. But previous research has been greatly stimulated by the finding that subjective evaluations of QoL remain more or less stable over lifespan despite objectively measureable declines in resources (Staudinger, 2000). Hence, research has mostly concentrated on the examination of this so-called wellbeing-paradox and on how older people manage to experience high wellbeing although their living circumstances are objectively deteriorating. In contrast, the question of how older people with high QoL succeed in maintaining and stabilizing their QoL in daily life without the experience of losses has rarely been the primary goal of research (Figure

2). In order to reply to this question, empirical studies should focus on the underlying dynamics of maintenance instead of risk or protective factors and they should start from high instead of low self-perceived QoL. Such a perspective implies a methodical challenge to empirically prove that nothing has changed due to certain strategies or interventions. But if it is known how healthy older people stabilize their QoL in daily life it would be possible to develop preventive interventions based on these results that educate healthy older people in applying strategies to actively maintain and stabilize their QoL. And considering the numerous years people are facing when they enter retirement, such interventions are important in order to support retirees in spending the rest of their lives with high QoL. Unfortunately, a loss-oriented focus is still apparent in research and in visions for future

research, e.g., The Berlin Declaration on the Quality of Life for Older Adults (Fernández-Ballesteros et al., 2009).

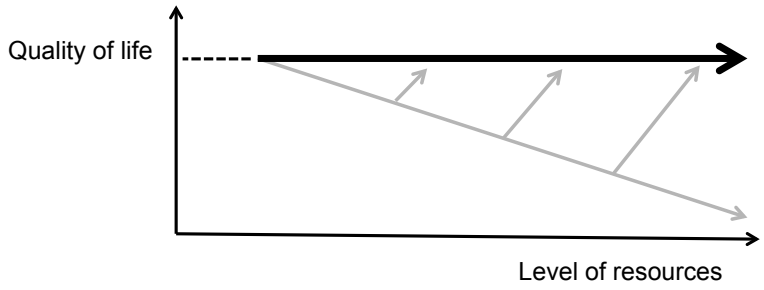

Figure 2. Illustration of common research goals in grey (exploring factors and mechanisms of regaining QoL) and research focus of the present work in black (exploring mechanisms behind stable QoL)

1.4 RESEARCH AIMS OF THE PRESENT WORK

As described in the previous chapters, it is pivotal to generate knowledge about QoL in healthy old age in order to support the upcoming generation of older people in enjoying a satisfying life. Thus, the overall goal of the present work is to attain progress in the conceptualization, measurement and stabilization of QoL in healthy old age. All studies presented in the current work contain basic steps in order to provide a sound basis for decision-making on which future research projects can be initiated. In chapter 2 the Functional Quality of Life (*f*QoL-)model is introduced that describes a novel conceptualization of QoL in healthy old age. It contains a basic set of general rules and, at the same time, leaves room for integration of the unique circumstances of an individual's living situation. Due to its high degree of individualization, the *f*QoL-model is a promising theoretical framework that can provide a basis for structuring future research in the field of QoL in healthy old age from an individualized perspective. The subsequent three chapters address central questions that arose with the introduction of the *f*QoL-model. Chapter 3 deals with possible operationalization of the *f*QoL-model. Therefore the conceptual particularities of the newly introduced model were extracted and compared with currently available QoL-measures that are appropriate to assess QoL in healthy old age in order to work out how well

existing QoL-measures could be applied to assess *f*QoL. Chapter 4 is about the validity of the *f*QoL-model. Using participatory research methods, face validity was tested with focus groups attended by professionals, and convergent validity was examined with a set of questionnaires (which consisted of a new *f*QoL-scale and other well established QoL-measures) filled out by healthy older people. And chapter 5 addresses the applicability of the *f*QoL-model in real life. In order to learn how well older people are able to provide information about the *f*QoL-components and how well real life situations can be depicted in personalized *f*QoL-portrayals, qualitative interviews were conducted with healthy older people. Finally, and as a continuation of the ideas of the *f*QoL-model, chapter 6 addresses the question of how older people stabilize their QoL in daily life from a subjective point of view. Therefore, healthy older people were interviewed again using qualitative research methods in order to ascertain whether and what kind of strategies they apply in order to ensure a stable level of perceived QoL.

1.5 METHODOLOGICAL CONSIDERATIONS

Keeping in mind the complexity of QoL in healthy old age and the variety of available empirical methods, it is clear that the above described overall research aim of attaining advances in conceptualizing QoL in health old age can be tackled in various ways, more precisely in at least three different ways: 1) statistical model fitting, 2) mathematical simulations or 3) graphical presentations (Butler, 2011). As mentioned before, the present work follows the third approach of graphical presentation and this engenders several implications. First, the empirical testing of a complex graphical model such as the *f*QoL-model requires the splitting of research into different manageable research units. The present work therefore contains four chapters of short and well-defined studies. Second, statistical methods such as regression or variation analysis that have commonly been applied in QoL-research in order to determine predictive or risk factors of high or low QoL, are inappropriate for the scrutiny of a graphical model. Thus, the studies presented in the current work encompass predominantly qualitative research methods, namely participatory methods (focus groups) and structured interviews and the systematic coding and analysis of the results, respectively. Since participatory research methods are not yet fully entrenched in psychological research, they are introduced in an overview in the following chapter. And third, at this initial stage of examination, small sample sizes are advisable. Findings resulting from larger sample sizes would not lead to a better understanding here. This is particularly the

case if QoL is explored from an individualized perspective because the external validity of results coming from large data sets is small. Thus, the studies in the present work are based on an appropriate number of participants that were thoroughly interviewed.

1.6 SHORT OVERVIEW OF PARTICIPATORY RESEARCH

Due to the growing number of older people in society, politicians (e.g., Swiss Federal Council, 2007; European Commission, 2012) as well as scientists (Fudge, Wolfe, & McKevitt, 2007; Walker, 2007) are increasingly stressing the importance of promoting the active participation of older adults in different societal domains. Participatory research is one opportunity to integrate older people and their potential and expertise. It contains a range of research methods (e.g., focus group, round table) that have the common idea of including those people in the preparation and conduction of empirical studies that are affected by the research topic. This implies that the target group is understood as an equivalent research partner and not only as study objects. Thus, using a participatory research approach can involve cooperation between the relevant stakeholder groups from the very beginning and during the whole study period (conceptualization, data collection, data interpretation, dissemination).

From a scientific point of view there are several reasons that are indicative for the systematic integration of older people in gerontological research. First and from an ethical perspective, those who are affected by research have a right to join in the determination of what is being examined. Second, the systematic integration of older people in research processes ensures that research questions are close to reality and are thus relevant for the target group. Third, succeeding in unifying different perspectives can lead to innovative research questions and methods and hence to a better and more comprehensive understanding of what is being examined. Fourth, the adjustment of research questions to the real needs of the stakeholder groups facilitates the development of effective and well-tailored interventions. And fifth, cooperation with relevant stakeholder groups improves the acceptance of research results in practice and supports their dissemination as well as their timely implementation. However, the effectiveness of participatory research methods has not yet been tested. Up to now, evidence is mostly based on anecdotal reports (Dewar, 2005).

2 THE FUNCTIONAL QUALITY OF LIFE (*F*QOL-)MODEL: A NEW THEORETICAL FRAMEWORK[1]

2.1 QUALITY OF LIFE CONCEPTS IN AGING RESEARCH

Quality of life (QoL) is increasingly being suggested as the central outcome variable in research on health-improving or preventive interventions in old age (e.g., Garratt et al., 2002). This suggestion is probably based on the observation that major objective improvements in resources, performances, and functioning often do not always lead to similarly large improvements in levels of self-reported life satisfaction, well-being, or QOL (e.g., Clark et al., 2012; Netz, Wu, Becker, & Tennenbaum, 2005), and that low levels of resources alone do not necessarily motivate individuals to use available and affordable interventions and respite services (e.g., Martin, Peter-Wight, Braun, Hornung, & Scholz, 2009). Note that resources are defined as behavioral propensities or options as indicated by abilities or traits and accessibility to external support such as social support or environmental support. It is also well documented that individuals' judgments may differ strongly from experts' views, for example, when rating their own health, or, more basically, when defining what health actually is (e.g., Schönemann-Gieck et al., 2003). Although by now a large number of instruments have been developed to measure QoL or contributing factors (for overviews, see Ettema, Dröes, de Lange, Mellenbergh, & Ribbe, 2005; Kliempt, Ruta, & McMurdo, 2000), there is still no firm consensus on the exact definition of QoL (see Brown, Bowling, & Flynn, 2004). The WHO attempt (The WHOQOL Group, 1995) to define QoL as a broad, metadisciplinary construct encompassing medical, psychological, and sociological aspects is helpful in that it gathers different conceptual strands into a shared framework. However, such a broad definition provides little practical support for tackling operationalization and measurement. In fact, it does not clearly separate QoL from similar – but distinct – constructs such as life satisfaction (Diener et al., 1985) and well-being (Ring, Höfer, McGee, Hickey, & O'Boyle, 2007).

Every instrument that measures QoL is based on a model of what defines high versus

[1] A similar version of this chapter was published in Martin, M., Schneider, R., Eicher, S., & Moor, C. (2012). The Functional Quality of Life (*f*QoL-)Model: A New Basis for Quality of Life-Enhancing Interventions. *GeroPsych, 25* (1), 33-40.

low QoL, what may cause increases or decreases in QoL, or which consequences high versus low QoL may have on other important attributes of human development (see Wahl & Heyl, 2005; Wahl & Lang, 2004). From our reading of the existing literature, there are currently two main approaches to determine QOL in old age: (1) the sQoL approach to measure the subjective evaluation of an individual's overall life situation, and (2) the oQoL approach to infer QoL of an individual from the outside, e.g., by measuring health impairments. The former approach rests on the assumption that QoL is by definition a subjective state and, consequently, must be measured through subjective statements. Here, the reported sQoL is often understood as reflecting the discrepancy between an individual' current life situation and some subjectively ideal or optimal life situation (e.g., Calman, 1984; Diener et al., 1985; Ferring, Filipp, & Schmidt, 1996; Heinisch, Ludwig, & Bullinger, 1991; Pukrop et al., 1999). Examples of such measures are the SWLS (Satisfaction with Life Scale; Diener et al., 1985), the SEIQoL-DW (Schedule of Evaluation of Individual Quality of Life - Direct Weighting; Hickey et al., 1996) or the EUROHIS-QOL (Power, 2003). The instruments differ in determining sQoL either on the basis of global life satisfaction items (SWLS) or via domain-specific satisfaction items (EUROHIS-QOL, SEIQoL-DW). However, the type and amount of domains used to define sQoL (e.g., physical health, environment, social relationships, autonomy, or spirituality) depend on the particular instrument and the population to be examined, thus making direct comparisons between different instruments difficult.

The first advantage of the *f*QoL-approach is that, from the perspectives of different individuals, the same resources and the same levels of functioning may differ in their relevance or functionality to achieve individually meaningful goals. That is, sQoL ratings may differ between individuals, even when – objectively measured – resources are comparable. On the other hand, sQoL ratings may be similar even when the resources are quite different. Thus, as long as an individual is in some way able to maintain or reach a positive evaluation of his or her own QoL, the sQoL rating may remain stable. The main disadvantage of the sQoL approach, however, is its lack of practical value for determining the effects of gerontological interventions; given a stable individual habit (e.g., "habitual well-being"; Becker, 1991) or stable individual ability to define one's sQoL as high, widely differing levels of resources may lead to similar sQoL judgments. From the individuals' perspectives, this is good news, because it points to their adaptive potential (Martin & Kliegel, 2010); but it also implies that improving resources will not necessarily increase sQoL. Statistically speaking, there would be no correlation between improvements in resources and sQoL, and one would wrongly assume that resource-enhancing interventions were ineffective in promoting sQoL,

whereas in fact individuals may be simply readapting the basis of their sQoL judgments. If we believe that a certain level of sQoL, combined with a higher level of resources, were preferable to one combined with lower levels of resources, then an optimal QoL measure should at least include both: a subjective evaluation of the life situation and an objective measure of resources. Examples for such instruments are the WHOQOL-OLD (Power, Quinn, Schmidt, & The WHOQOL-OLD Group, 2005) or the AQoL (Assessment of Quality of Life; Hawthorne, Richardson, & Osborne, 1999).

The second approach, which uses outside or objective measures of QoL, is based on the assumption that oQoL is higher, the better (or less impaired) the given resources of a person are (independent of any subjective judgment). The obvious advantages of this approach are that oQoL can be determined more reliably, without individual report biases and even without requiring a statement from the person whose oQoL is being measured, such as in dementia. The main disadvantage of this approach, however, is that it hardly takes into account interindividual differences in the functionality of available resources to achieve individually meaningful. What is more, the combined measurement of resources or, more often, resource impairments, is often positively labeled "quality of life" when in fact it is no more than a combination of resource impairment measures. There are a number of examples of such illness-related oQoL measures: the SF-36 (Bullinger & Kirchberger,1998), the EQ-5D (Kind, Brooks, & Rabin, 2005) or the H.I.L.DE. (Heidelberger Instrument zur Erfassung von Lebensqualität bei Demenz; Becker et al., 2005). These instruments differ widely in the resource dimensions they assess. The SF-36, for example, focuses on illness symptoms and functional health, whereas the H.I.L.DE. assesses several dimensions of physical, mental, and social impairments.

With the existing approaches to determine subjective QoL and objective resource impairments, two distinct and useful QoL concepts are currently being used in gerontological research. While the sQoL approach is feasible in normal populations, it neglects the importance of considering not only the subjective resource representations, but also the objectively available or missing resources. In contrast, the oQoL approach is a feasible solution to determine autonomy-endangering resource losses even in dementia patients; however, it largely neglects the importance of subjective resource functionality for goal achievement, especially in non-impaired populations of older adults – and it wrongly labels impairment measures as measures of QoL. Thus, a third approach is suggested – the functional QoL (*f*QoL) approach – to close the gap between the existing approaches and to combine the strengths of both. *F*QoL and its dynamics explain and predict the relationships

between oQoL and sQoL measures. All three approaches are distinct and theoretically productive tools for empirical intervention research. The present theoretical framework combines all three approaches and provides gerontologists with a completely new set of potential QoL-enhancing interventions as well as a sound theoretical basis upon which to argue exactly why and how the effectiveness of different interventions ought to be measured.

2.2 QUALITY OF LIFE AS AN OUTCOME VARIABLE IN RESOURCE-ENHANCING INTERVENTIONS

Interventions that aim to improve or maintain QoL in old age cover a wide spectrum of basic cognitive, physical, or social resources (e.g., Baltes, Neumann, & Zank, 1994; Schulz, Maddox, & Lawton, 1999; Wahl, 2000). To determine the effects of such interventions on QoL, both measurement approaches have distinctly different implications. When using the global self-rating (Figure 3, right side), changes concerning the resources can be determined only indirectly through their subjective evaluation. This is quite a rough estimate, considering that individuals differ both in their abilities to produce a positively weighed QoL evaluation and in their strategies to regulate and stabilize their QoL. What is more, even if interventions successfully improve resources, QoL may remain unaltered, because the ability to produce a positive global QoL evaluation – even when applied to differing resource levels – may result in a stable level of self-reported QoL. Statistically, there would be no correlation between objectively measured resource levels and subjective QoL or between objectively measured resource improvements and QoL change, and one would wrongly assume that the intervention were not affecting the experienced QoL. Even when there are changes in subjective QoL, these are not necessarily caused by objectively measured resource changes; thus, the true cause of these effects needs to be further examined, e.g., through the assessment of potential mediating influences (see Sprangers & Schwartz, 1999). The main consequence of the global and subjective QoL measurement approach for the matching interventions is that interventions ideally would have to try to improve subjective QoL independently of the objectively measured resource level. Here, the most promising pathways are cognitive strategies of secondary control such as the reappraisal of goals, concepts, values, and internal standards (e.g., Brandtstädter & Renner, 1990; Ebner, Freund, & Baltes, 2006; Filipp, 1999). In the case of the second QoL measurement approach (Figure 3, left side), any intervention that improves resources per definitionem also improves QoL, simply because the level of assessed resources is what defines this type of QoL. To what extent improvements in resources affect their

subjective appraisal and their functionality is not in the focus of this approach. Several studies suggest that improvements in specific resources such as physical fitness and financial resources are at best moderately related to subjective QoL assessments (Diener, Suh, Lucas, & Smith, 1999; Herschbach, 2002).

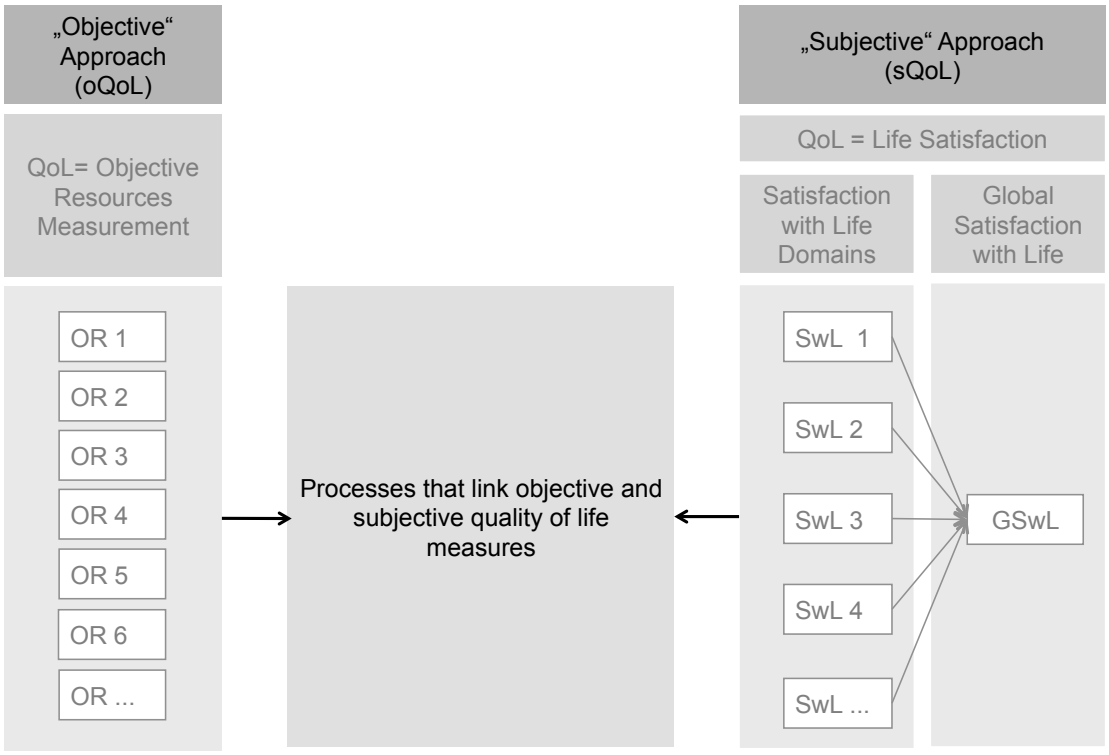

Figure 3. Schematic illustration of existing general quality of life models in gerontology

Overall, both measurement approaches have distinct consequences for gerontological interventions, but they are also problematic because the mechanisms by which objectively measured resource measures are linked to subjective global QoL assessments are not specified by either model. Thus, improving resources may or may not lead to improved subjective QoL, and higher levels of QoL may or may not be caused by higher levels of resources. The *f*QoL approach that is suggested to close this gap offers a conceptual link between subjective resource representations and a functional goal and action perspective and thus allows deriving distinct *f*QoL-improving interventions.

2.3 FUNCTIONAL QUALITY OF LIFE (*F*QOL) IN OLD AGE

The *f*QoL-model (Figure 4) defines QoL as the integration of multiple subjective representations of the functionality of resources. That is, it assumes that *f*QoL is higher, the more strongly individuals represent their resources as being principally functional to perform complex activities that serve individually central life or goal domains. Our model can be distinguished from the existing approaches: First, despite using subjective assessments, these are not satisfaction judgments, but rather functionality judgments. That is, a person can have similar levels of sQoL with either high or low levels of objectively measured resources, as long as the current levels of resources are represented as equally functional to achieve personally meaningful goals. If, for example, physical abilities are in decline, one may no longer be able to run a farm to serve the goal of being close to nature, but one may be able to plant a small garden to achieve the same goal. If individuals manage to represent their physical abilities as equally functional to achieve the desired goal (and not to perform the same activity as before), their *f*QoL is stable, and this should result in a stable sQoL rating. If individuals, however, do not manage to adapt either the functional representation or the activity or the goal, *f*QoL drops – as should the resulting overall sQoL. If, however, individuals have larger numbers and more diverse goals or can perform more meaningful activities, *f*QoL is higher and sQoL remains stable, because the functionality of objectively measured resources remains stable. Second, despite including objectively measured resources, these are part of the model to the degree that their functional value for the individual life situation is represented. In our model, the objectively measured resources and QoL are not identical. Using our example again, higher levels of physical resources would only lead to higher levels of *f*QoL if their functional value to perform goal-related activities increases. That is, if individuals detect that their physical resources allow them to perform an activity that is better suited to achieve the goal of being close to nature, e.g., using a technical support system that makes them more mobile in the forest, then the functional value of the same level of physical resources increases, while the oQoL level would remain the same.

The *f*QoL model consists of four main elements: functionality representations of specific resources, the goal-related activities, the goal domains, and the interrelations within and between these elements.

Functionality representations of specific resources: Resource levels enter the model as functionality judgments. Hence, instead of measuring resources *objectively* with appropriate tests, the *f*QoL-model integrates a subjective view on resources, namely the subjective

representation of their functionality to perform goal-related activities. This implies that it is not the mere availability of resources that determines QoL but their subjectively represented usefulness. Taking this subjective perspective into account is essential in order to avoid the incorrect assumption that subjectively meaningless resources (i.e., unrelated to actions or goals) influence QoL. Nevertheless, the *f*QoL-model expects that more and higher levels of resources lead to higher *f*QoL since they enable the individual to perform complex activities that in turn can support several goal domains. From an empirical point of view, resources have turned out to be positively correlated with QoL in several studies (e.g., Diener & Fujita, 1995; Jopp & Leipold, 2004).

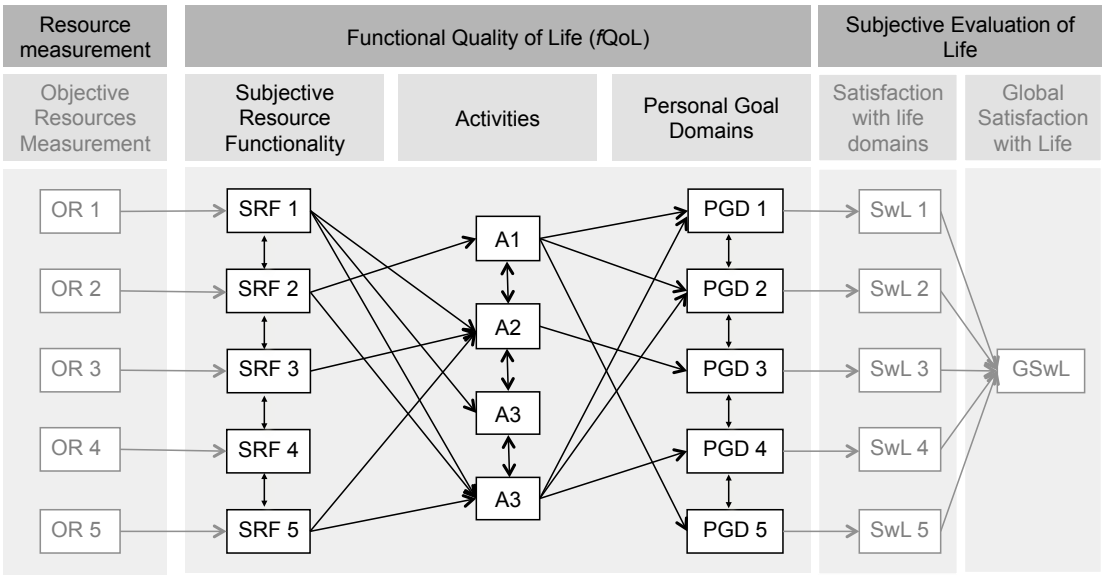

Figure 4. Functional Quality of Life (*f*QoL-)Model (middle)

Goal-related activities: Conceptually, activities are reportable behaviors that can be initiated by an individual including the cognitive preparation of actions through activities of planning, reasoning, inhibition, and deliberation. By defining activities as goal-directed behaviors that require the use of certain resources, the model assigns them a connecting link between the subjectively represented functionality of resources and personal goal domains. Activities can include diverse physical, mental and social behaviors ranging from daily activities (e.g., self-care) to social participation (e.g., voluntary engagement). But even though studies examining *active aging* have shown that daily activities are closely related to well-being and QoL (Boudiny & Mortelmans, 2011; Stenner, McFarquhar, & Bowling, 2011), the

*f*QoL-model is the first theoretical framework to integrate activities as an independent QoL-component. The model considers both actual and hypothetical activities, because *f*QoL should be higher when individuals are convinced that their resources would be functional if an activity was or became desired or required. As an illustration, one may consider the functional value of social support resources. Their functional value may be high with respect to possible emergencies, and they may have a positive effect on sQoL measures even if or because they are rarely or never needed. As another illustration, consider that the amount of daily activities one wishes to perform cannot be achieved either due to the lack of sufficient time or because of the impossibility to perform these activities simultaneously: believing that not all desired or required activities could possibly be performed within the 24 h of a day or, worse, that they exclude one another (such as in medical therapies when the pill for one illness cannot be used when a particular other condition exists; Boyd et al., 2005) reduces *f*QoL, while being able to perform all required activities increases it. One may also consider that resources may be functional to perform an activity subserving a short-term goal such as taking a medication or using a notepad to remember intentions, but that the activity is maladaptive in the long term in the sense of side effects of long-term medication use or providing a lower amount of cognitive stimulation. Therefore, *f*QoL should be higher when resource functionality is high both in the short and long term. *F*QOL is also higher if a larger range of the available resources and their interplay is considered functional for a complex activity. Finally, *f*QoL is higher when activities are simultaneously relevant to several individual goal domains. In this way, the activity has an added value. As an illustration, consider individuals who, by participating in a dance class, further their goals of social integration and physical exercise simultaneously. Hence, attending a dancing class is to be preferred over simply performing gymnastics exercises because it promotes the use of more resources (e.g., motivation, motor functions, stamina, social contacts, local infrastructure) and is likely to serve more than one goal domain at the same time (e.g., health, social participation, partner- or friendship).

Goal domains: Instead of global life evaluations, personally relevant goal domains are integrated into the *f*QoL-model. The importance of personal goals for QoL has been shown in many empirical studies (e.g., Emmons, 1986; Brunstein, 1999, Boersma, Maes, & Joekes, 2006) and the presence and achievement of personal goals has therefore been declared as a sign of successful aging (Baltes & Carstensen, 1996). By considering personal goals and the associated directions of development, the *f*QoL-model goes beyond traditional QoL-operationalizations, which are usually limited to a very momentary assessment of the quality of different life domains (e.g., Ferrans & Powers, 1992; Bowling, 2009). Understanding

personal goal domains as important life areas which are central to a person's identity and in which a person pursues one or more specific goals targeted at an ideal imagination of this domain, the *f*QoL-model overlaps with the often cited QoL-definition as the gap between the current and intended life situation (e.g., Calman, 1984; Michalos, 1985). Many measures implicitly assess this gap by asking how satisfied the individual is with his/her life (Ruta, Garratt, Leng, Russell, & MacDonald, 1994). In contrast, the *f*QoL-model assesses the gap in a more detailed way as the divergence of what an individual currently has (resources) and does (activities) and what an individual aims to achieve (goal domains). Goal domains may be considered as the driving force behind the functional QoL and its adaptation to changes in resource levels and overall sQoL assessments. To the degree that activities are related to goal domains in such a way that they are represented as matching the goal, *f*QoL is higher compared to goal-unrelated activities. Larger numbers of goal domains, as well as more diverse goal domains (i.e., goals are more unalike), are representative of higher levels of *f*QoL, because they allow for the multiple use of activities on the one hand; on the other hand, a wider range of activities increases the likelihood that more of the available resources may be considered to be functional. Hence, if more different resources are represented as (at least partly) functional toward achieving individually meaningful goals, this increases the likelihood of compensating the loss of particular activities or the loss of the functional value of other resources. In addition, although individuals may experience reasonably high levels of sQoL with just a single goal domain (or several, however very similar goal domains), the loss of this particular goal domain can have a devastating effect on sQoL even when oQoL levels are reasonably high. A reduction of goal domains or a lower degree of intergoal diversity is adaptive, however, when resource levels are depleted. If *f*QoL rests on more different goal domains, and individuals are clearly involved in life with more intensity and extensity, they can explore more variable environments, and are more likely to withstand changes in life circumstances or critical life events.

Interrelations within and between resources, activities and goal domains: In the *f*QoL-model, interrelations between resources, activities and goal domains are considered as a fourth QoL-component that is supposed to differ between individuals like the other three does. Although the dynamic interplay of QoL-components is essential to understand changes and stabilities over time (irrespective of the QoL-operationalization), interactions of components have only marginally, if at all, been addressed in previous works. Entering interrelation in the model assumes that individuals actively manage their *f*QoL, and that they differ in this ability (Boker & Martin, 2013). For example, when a new goal-domain is

selected, the representation of the available activities as being goal-related needs to be adjusted. Hence, the *f*QoL-model assumes that *f*QoL is higher when interrelations are more numerous, implying that dense ties end up supporting the maintenance of personal goal domains or the achievement of specific goals. Otherwise, as the model suggests, individuals would perform the same activities as before, but they would be unrelated to at least this new goal domain. In effect, this makes an activity meaningless. Assuming that meaning in activities is desired, then either a matching goal domain has to be identified or the activity needs to change to match the current goal domains. Identifying a matching goal can sometimes be achieved by subdividing a more abstract goal domain, e.g., "social integration," into more concrete domains such as "rewarding social relationships with grandchildren" or "rewarding relationship with partner" (and so on), or sometimes by rationally setting oneself new goals and challenges and seeing if this leads to goal internalization, i.e., the acquisition of a new goal that eventually feels as if it had "always been there." In real life, this would be the case when trying out new memberships, social contacts, or hobbies that may eventually become ascribed to one's identity, e.g., when after years of practice and performance someone becomes identified as "the musician" or "the manager" who originally practiced the required skills only "to try out something new." Activities can also be adapted to optimize *f*QoL, e.g., by requiring more different resources or by subserving more goal domains. For an illustration, consider that to match the goal of social integration, instead of taking dance lessons and practicing exactly the same dance with the same person every time, adding new dances, dancing with different persons, or even creating new dances may match goal domains of physical and mental fitness and maybe also taking responsibility for others, and may thus require the functionality of a larger variety of resources.

Different from the existing approaches, the *f*QoL approach suggests that QoL can be improved by (1) adapting resource functionality assessments, (2) adapting activity complexity (requiring more different functional resources) and overlap (reducing activity contradictions and potential overload), (3) adapting the number and heterogeneity of goals, and (4) adapting the dynamics of adaptation (from passive responding to resource changes to proactive processes of activities development and multiple goal management). Overall, according to the *f*QoL-model, the functional QoL of individuals is higher when, from their point of view:

1. More resources are available,
2. The levels of more resources are higher,
3. Activities require the combined use of more resources,
4. More resources are functional for each activity,

5. More activities are congruent with any central life domain,
6. Single activities are congruent with more central life domains,
7. More central life domains exist,
8. Central life domains are more heterogeneous,
9. Activities do not exclude one another and are congruent with short- and long-term goals.

2.4 IMPLICATIONS OF THE *F*QOL-MODEL FOR GERONTOLOGICAL INTERVENTIONS

The *f*QoL-model offers advantages over existing approaches with respect to the design and the evaluation of gerontological interventions. First, it combines the most important assumptions of the existing conceptual and measurement QoL models that have so far been addressed in separate lines of research. Second, through the explicit and specific definition of *f*QoL, the construct can be measured reliably. Third, the subjective perspective remains part of the definition, although *f*QoL measures do not require individuals to provide overall evaluative statements. Fourth, the model makes partly counterintuitive and empirically testable predictions:

- Improvements in the subjective evaluation of the functionality of resources improves *f*QoL. That is, improving resources alone has no effect on *f*QoL, and decreasing resources only affect *f*QoL negatively once their level of functionality drops below a certain threshold. Therefore, widely differing levels of physical fitness, for example, may be equally functional for gardening activities as long as some gardening activities can be performed.
- The hypothetical usability of resources to achieve subjectively meaningful goals has a positive effect on *f*QoL. That is, it is not so much improving the actual use of resources, but rather their subjective potential usability that increases *f*QoL. The usability depends on individual goal domains. Therefore, even subjectively comparable resource levels may lead to different levels of *f*QoL, depending on their fit with central goal domains of individuals.
- Complex activities, i.e., activities that require diverse functional resources, have a positive effect on *f*QoL, not the isolated use of single resources. That is, extensively practicing single resources, as is common in interventions, does not necessarily have a positive or even any effect on *f*QoL. Instead, more complex goal-related activities can

stabilize *f*QoL by enabling for more compensatory opportunities, and increase *f*QoL through positive contributions to more goal domains. For the first time, with the *f*QoL-model, the need for and the characteristics of *f*QoL -enhancing activities from a consistent theoretical standpoint can be derived.

- Increasing the goal-relatedness of activities has positive effects on the *f*QoL. That is, activities that are related to a larger number of goal domains, and to more diverse (i.e., unrelated) goals, lead to higher *f*QoL compared to activities related uniquely to a single goal domain. In essence, activities need to at least develop a relationship to existing or developing goal domains or else they will have a negative effect on *f*QoL. In other words, an activity, even when considered optimal from an outside or expert perspective (e.g., a preventive memory or physical training), will have negative effects on *f*QoL if individuals do not manage to relate the activity to essential goal domains, and it will have only positive effects with such a, or better with multiple, goal domain relations.
- Multiple and more diverse goal domains have positive effects on *f*QoL. That is, a top athlete pursuing a single goal of athletic success will have a lower *f*QoL compared to an individual with several different goals (although the top athlete may be flexible in active goal alignment, i.e., concentrating all activities on one goal, but pursuing multiple goals at other times). This suggests that interventions that allow to "sample" or try out or provide opportunities to find new goal domains or to diversify existing ones, can increase *f*QoL. From a practical standpoint, therefore, educational interventions and opportunities to reflect one's abilities, strengths, weaknesses, ambitions and plans, should be considered (and their effect tested) *f*QoL -enhancing interventions.

2.5 DISCUSSION

It has been argued that a Functional Quality of Life (*f*QoL-)model combines the strengths of approaches determining QoL either as objectively measurable resources (impairments) or as global subjective evaluations of the current life situation. The dynamic *f*QoL-model specifies testable relations between individual functionality judgments concerning ones' resources, consistency of activities, and individually central life domains as well as how the relations can be dynamically adapted to stabilize or increase *f*QoL. As such, the model allows to use a common framework and methodology to examine and compare *f*QoL between individuals and

within individuals over time even when the relevant resources, activities, and goal domains differ and change. The approach describes the multiple processes involved in the stabilization of subjective QoL and can explain (1) how sQoL may be maintained even when oQoL deteriorates and eventually becomes impaired and (2) how sQoL may deteriorate even when oQoL increases. Thus, the *f*QoL-model overcomes an essential problem of the well-being paradox (Staudinger, 2000): The paradox at first sight suggests that interventions to increase well-being may not be needed as seemingly most individuals report high levels of well-being even when resource levels are extremely low. The *f*QoL-model, in contrast, highlights and specifies the enormous and complex intraindividual dynamics behind sQoL stabilization and makes them the target of and accessible to empirical testing and practical interventions. Whereas there is typically little variance in sQoL, the focus on the dynamics and, thus, variance in *f*QoL should provide a useful model for empirical research.

One may wonder whether the *f*QoL approach is just a new name for existing concepts of assimilative and accommodative processes (Brandtstädter, 2007), primary and secondary control (Schulz & Heckhausen, 1999) or problem- versus emotion-centered coping (Lazarus & Folkman, 1984) – or more generally self-regulation. But the approach differs with respect to these concepts for several reasons. First, the model specifies the variables and process principles needed to determine the individual *f*QoL. Thus, *f*QoL can be indicated by interindividually different resources and strategies, but can be explained by the same principles of individual functionality. In addition, the model integrates simultaneous multiple goal domains and the simultaneous functionality of multiple resources. This is probably the major advantage of this concept. Second, the model makes clearly different predictions than other models, because it can be applied to self-initiated changes in its constituting elements in the absence of resource impairments, whereas most self-regulation approaches in the aging literature focus on the coping or overcoming of stress, critical life events or increasing impairments. Third, the effects of repeatedly adapting or increasing *f*QoL across the lifespan should have an additional benefit on the individual development if there was a feedback mechanism using the reflection of successful *f*QoL improvement or stabilization efforts to improve functionality assessments, activity selection or goal alignment. This is currently not part of the model, but may be empirically assessed, e.g., by relating *f*QoL and *f*QoL changes to indicators of self-efficacy or internal control beliefs.

From a general perspective, the *f*QoL approach suggests that it is unlikely to find strong predictive relations between objective measures of specific resources and subjective overall ratings of one's QoL despite the fact they are substantially related (see Boker &

Martin, 2013; Martin & Moor, 2012). Assuming that individuals consist of a bundle of simultaneously effective multiple characteristics, these multidimensional and goal-oriented individuals can be considered as managers of their own life. Thus, it is not paradox from an individual's perspective that sQoL may remain stable when physical abilities are lower, because (1) more than one factor such as physical abilities is needed to stabilize sQoL, and (2) multiple constellations of resource levels may equally stabilize sQoL. Thus, theorizing first about the laws that govern the maintenance of subjective QoL will improve our understanding of individual differences in general, because these may be produced by the exact same rules that explain individual similarities (Martin & Moor, 2012).

3 HOW QUALITY OF LIFE IN HEALTHY OLD AGE HAS BEEN DEFINED: COMPARING EIGHT EXISTING QOL-OPERATIONALIZATIONS WITH CONCEPTUAL FEATURES OF THE *F*QOL-MODEL

3.1 INTRODUCTION

Understanding QoL in healthy old age is of increasing importance for several reasons. First, due to increasing life expectancy and compression of morbidity – shown in national and international studies (e.g., Cheung, Robine, Paccaud, & Marazzi, 2009; Andersen, Sebastiani, Dworkis, Feldman, & Perls, 2012) – older people spend more and more years in good health. Accordingly, healthy aging has become normal aging for many people (Browne et al., 1994). Second, knowing what gives quality to the life of healthy older people can help to support coming generations to maintain high QoL for as long as possible with appropriate interventions. And third, healthy old age is an upcoming field in age-related research (e.g., Phellas, 2013). Thus defining and operationalizing QoL appropriately is essential for sound and comparable research results. But there is no gold standard in measuring it and expecting a generally accepted way of operationalization seems unrealistic due to the long and interdisciplinary research history of QoL. The major task of future research must therefore be to examine the strength and shortcomings of existing approaches as well as to work out where and for what purpose they are best applicable. This is a challenging task, but with the newly developed Functional Quality of Life (*f*QoL-)Model a new theoretical framework is available that contains several innovative conceptual elements that are pivotal for assessing QoL in healthy old age. Thus, the *f*QoL-model provides a theoretical basis on which currently existing approaches to operationalize and assess QoL in healthy old age can be evaluated.

3.1.1 The new theoretical framework of Functional Quality of Life

Briefly speaking, the Functional Quality of Life (*f*QoL-)Model assumes that functional QoL is high when available resources are functional, i.e., useful (from a subjective perspective) to

perform certain activities, which in turn serve personal goal domains (Figure 4, page 23). Personal goal domains encompass crucial life domains in which a person pursues a certain direction of development (e.g., maintaining health) or specific goals (e.g., regaining agility), activities embrace actions a person does in order to serve these personal goal domains (e.g., practice gymnastics once a week) and resources include the subjective representation of the functionality of all abilities and means (internal and external) that are needed to perform these activities (e.g., studio nearby, course offer, appropriate clothes, motivation). Beyond that, the *f*QoL-model considers the match between goal domains, activities and resources as a crucial factor for QoL by presuming that a mismatch between, e.g., low levels of resources and ambitious goals, is detrimental for QoL.

With this understanding of QoL the *f*QoL-model comprises several striking conceptual elements (summarized in Table 4): First of all, the *f*QoL-model is based on a multidimensional understanding of QoL. Multidimensionality is in fact given twice in the *f*QoL-model: Through several personal goal domains (comparable to life domains commonly evaluated in QoL-assessments, e.g., Quality of Life Index, Ferrans & Powers, 1985) as well as through the two additional QoL-components resources and activities. Therewith the cognitive component of QoL (evaluating different goal domains) is extended by a component of doing (activities) and a component of having (resources). This multiple-multidimensionality allows a better and more comprehensive depiction of QoL in the healthy elderly.

Table 4. Conceptual features of the Functional Quality of Life (*f*QoL-)Model

Multiple multi-dimensionality	*F*QoL is not only determined by individually different goal domains (multidimensionality) but also by goal-associated activities and resources that are required to perform these activities (multiple multidimensionality).
Individualization	Even though the *f*QoL-model provides a general framework, the number and content of all determinants (personal goals, activities, resources and interrelations between them) can be defined individually.
Person x Environment	Based on the underlying notion of *f*QoL as the product of a person x environment interaction, environmental characteristics can be integrated into the model as long as they are meaningful to the individual.
Activities	Activities as a mean to maintain personal goal domains or to achieve personal goals are seen as crucial *f*QoL-determinants and their actual or hypothetical performance is thus supposed to influence the subjective perception of *f*QoL.
Personal goal domains	The presence, maintenance or achievement of personal goal domains as individually intended states in the future is considered as pivotal for the subjective perception of *f*QoL.
Interrelations	As an indicator of the subjective functionality of available resources and the goal-relatedness of activities, dense interrelations within and between *f*QoL-components are regarded as important for subjective *f*QoL.

Second, a high degree of individualization is apparent in the *f*QoL-model since content and numbers of all components as well as their interactions are to be determined individually. Considering unique aspects of a person's living situation is not only important in practical work (Law, Baptiste, & McColl, 1990; Clare et al., 2009; Hughes, McMurdo, & Guthrie, 2013) but has recently also gained awareness in research (e.g., Sniehotta et al., 2012; Eschen, Zehnder, & Martin, 2013). A high degree of individualization is appropriate particularly in elderly people whose life situations are often characterized by a high degree of complexity and great interindividual variability (Eicher et al., 2014). However the model still enables inter-individual comparisons for empirical purposes due to its predetermined framework.

Third, in line with many definitions of QoL, which posit that high subjective QoL is the result of an optimal person-environment interaction (e.g., Browne et al., 1994; Cummins, 2000; Sirgy & Cornwell, 2001; Fernández-Ballesteros, 2011), the *f*QoL-model allows the incorporation of environmental characteristics. Environmental aspects can be directly integrated into the model as external resources or in a more indirect way as conditions that promote or prevent activities and the pursuit of personal goals. However, environmental features are only supposed to be integrated in the model as long as they are meaningful to the individual.

Fourth, by showing that activities are closely related to well-being and QoL (Boudiny & Mortelmans, 2011; Stenner et al., 2011), studies referring to *active aging* have concluded that QoL can be seen as a crucial outcome of being active (Bowling, 2008). With the *f*QoL-model, activities receive an autonomous role by assigning them a connecting link between resources and personal goal domains. But it is not only the effective performance of activities that is supposed to positively influence QoL but also the hypothetical possibility to perform them in a given situation (e.g., asking for instrumental social support if needed).

Fifth, since being active or behaving actively is inevitably connected with intentions and motivations, aspects of doing are likely to be driven by personal goals (e.g., autonomy, hobbies). In fact, the importance of personal goals for QOL has repeatedly been discussed in QoL-literature (e.g., Lawton, 1996; Emmons, 1999; Rapkin, 2000; Filipp & Ferring, 2001), particularly in terms of the gap between current situation and the ideal imagination thereof (e.g., Calman, 1984; Ruta et al., 2007). The positive association between the availability and maintenance of personal goals and QoL has been demonstrated in empirical studies (e.g., Emmons, 1986; Brunstein, 1999; Wrosch & Scheier, 2003; Boersma et al., 2006; Ebner et al., 2006). The *f*QoL-model explicitly integrates personal goals into its conceptualization of QoL. This is essential since personal goals make sure that assessments focus on subjectively

important QoL-determinants rather than on what researchers believe to be relevant for high QoL. Furthermore, since personal goals refer to a desired state in the future, their assessment necessarily exposes underlying directions of development. With this, the *f*QoL-model goes beyond traditional QoL-operationalizations, which are mostly confined to a snapshot of the quality of different life domains (e.g., Ferrans & Powers, 1992; Bowling, 2009).

Sixth, according to the *f*QoL-model, it is not only the number and content of personal goals, activities and resources that determine QoL, but also the connections within and between them. By assuming that *f*QoL is higher when interrelations are denser, the *f*QoL-model considers interrelations as an autonomous *f*QoL-determinant. Considering connections is essential since knowing what changes in these interrelations provides information about dynamic processes over time and can give some indication of how QoL is maintained or improved by the individual (Martin, Jäncke, & Röcke, 2012a).

3.2 RESEARCH AIM

The main aim of the present study is to compare currently existing QOL-measures with the conceptual particularities of the *f*QoL-model. In order to work out how well conceptual features of the *f*QoL-model are represented in currently available measures, or in other words how well *f*QoL can be operationalized with existing instruments, measures that are appropriate to assess QoL in healthy old age were identified and scrutinized.

3.3 METHODS

In order to identify existing QoL-measures applicable in healthy age, a systematic desk research was conducted in October 2012. The databases *web of science*, *PSYCHINFO* and *pubmed* were systematically searched for the keywords *quality of life*, *measure**, *instrument**, *questionnaire*, *old age*, *older adults*, *elderly, healthy age** and *normal age**. Due to the great amount of results, the search was re-conducted by entering one term referring to QoL, healthy age and measurement simultaneously on each search. Identified instruments were selected on the basis of the following criteria: a) Instrument was introduced as quality of life measure (not under the term wellbeing or life satisfaction), b) Instrument was introduced as *general* QoL-instrument, (neither disease-specific nor generic), c) Instrument was specifically developed for old age or was at least administered in age-related contexts, d) Instrument was mainly

administered with community-dwelling people (not residents), e) Instrument includes self-report (not proxy report), f) Instrument was published in English and g) Instrument has good psychometric properties. Measures that were cited along with identified instruments were discovered by hand search and were also proved regarding the inclusion criteria. If an instrument was available in a short version, the long version was regarded.

3.4 RESULTS

Overall, eight QoL-instruments were identified as appropriate to measure QoL in healthy old age (Table 5) They were published between 1985 and 2009 and were developed in Europe, USA, Canada or in international research groups. Seven measures comprise a questionnaire format and one a face-to-face interview (SEIQoL).

Table 5. Existing QoL-instruments appropriate for measuring QoL in healthy old age

Measure	Author(s)	Underlying definition of QoL	Items	Domains	Scoring	Psychometric properties
Control, autonomy, self-realization, pleasure (CASP-19)	Hyde, Wiggins, Higgs, & Blane (2003)	"Quality of life can […] be assessed by the degree to which the requirements for all four domains are satisfied." (p. 188)	19	Control; autonomy; self-realization; pleasure (4)	Response-scale: Frequency Scoring: Global Short version: CASP-12 (Wiggins, Netuveli, Hyde, Higgs, & Blane, 2008).	Reliability: d=0.59 - 0.77 Validity: Given (LSI-W) Responsiveness: N.a.
LEIPAD	De Leo et al. (1998)	"In the widest sense, the expression quality of life encompasses all aspects of human life, including each person's material, physical, social, emotional, and spiritual wellbeing." (p. 17)	49	Physical functioning; self-care; depression and anxiety; cognitive functioning; social functioning; sexual functioning; life satisfaction (7)	Response-scale: Application Scoring: Global Short Version: LEIPAD-SV	Reliability: d=0.55 - 0.79, Validity: Given (Rotterdam Questionnaire) Responsiveness: N.a.
Quality of Life Index (QLI)	Ferrans & Powers (1985); Ferrans & Powers (n.a.)	"[…] a person's sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her." (Ferrans & Powers, 1990, p. 15)	66	Health and functioning; social and economic; psychological and spiritual; family (4)	Response-scale: Satisfaction weighted by importance Scoring: Global and domains	Reliability: d=0.73 - 0.99 r_{retest}=0.81 - 0.87 (one to two weeks) Validity: Given (life satisfaction) Responsiveness: Given
Quality of Life Profile – Seniors Version (QOLPSV)	Raphael, Brown, Renwick, Cava, Weir, & Heathcote (1997)	"The degree to which a person enjoys the important possibilities of his/her life." (p. 232)	111	Being (physical, psychological, spiritual); belonging (physical, social, community); becoming (practical, leisure, growth) (3)	Response-scale: Enjoyment weighted by importance Scoring: Global, domains and subdomains	Reliability: d=>0.90 Validity: Given (LSS, MUNSCH, SHB, ACT) Responsiveness: N.a.

Table 5. Existing QoL-instruments appropriate for measuring QoL in healthy old age (continued)

Measure	Authors	Definition of QoL	Items	Domains	Scoring	Psychometric properties
Older People's Quality of Life Questionnaire (OPQOL-35)	Bowling (2009)	"[…] QoL is a largely subjective concept […]"; "[…] QoL was considered as unidimensional construct […] but with multiple influences." (p. 1/2)	35	Life overall; health; social relationships and participation; independence, control over life, freedom; area: home and neighborhood; psychological and emotional well-being; financial circumstances; religion/culture (8)	Response-scale: Agreement Scoring: Global Short version: OPQOL-brief (Bowling et al., 2013)	Reliability: d=0.75 - 0.90 Validity: Given (CASP-19, WHOQOL-OLD) Responsiveness: N.a.
Schedule for Evaluation of Individual Quality of Life – Direct Weighing (SEIQoL-DW)	O'Boyle, Browne, Hickey, McGee, & Joyce (1992); Wettergren, Kettis-Lindblad, Sprangers, & Ring (2009); Browne et al., (1994)	"Quality of life (QOL) is a dynamic interaction between the external condition of an individual's life and the internal perception of those conditions." (Browne et al., 1994, p. 235)	15	Self-determined cues elicited in a personal interview (5)	Response-scale: Functioning weighted by relative importance Scoring: Global	Reliability: d=N.a. Validity: Given Responsiveness: Unclear
WHOQOL-100	WHO (1998)	„[…] individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." (p. 3)	100	Physical; psychological; level of independence; social relations; environment; spirituality/religion/ personal beliefs (6)	Response-scale: Evaluation, intensity, capacity, frequency Scoring: Domains and facets Short version: WHOQOL-BREF (von Steinbüchel, Lischetzke, Gurny, & Eid, 2006).	Reliability: d=0.72 - 0.88, r_{retest}=0.68 - 0.95 (two to eight weeks) Validity: Given Responsiveness: N.a.
WHOQOL-OLD (additional module to WHOQOL-100)	Power, Quinn, Schmidt, & The WHOQOL-OLD Group. (2005)	see WHOQOL-100	24	Sensory abilities; autonomy; past, present and future activities; social participation; death and dying; intimacy (5)	Response-scale: Evaluation, intensity, capacity, frequency Scoring: Facets, global	Reliability: d=0.72 - 0.85 Validity: Given (Power, 2006) Responsiveness: N.a.

Comparing the identified measures with the conceptual features of the *f*QoL-model revealed the following:

Multiple Multidimensionality: The analysis of domains showed that all instruments are based upon a multidimensional view of QoL, i.e., that QoL is made up of several domains (for a single-dimension view, see, e.g., Naughton & Wiklund 1993). In the identified measures, domains – often synonymously referred to as dimensions – are understood as areas of people's lives that are thought to be important and meaningful to them and are crucial for their subjective perception of QoL. The measures differ widely in terms of both the amount and nature of domains they contain, as shown in Table 6. The number of domains ranges from three (QOLPSV) to eight (OPQOL) and domains appear to touch diverse levels of human existence. Some domains refer to physical or mental health or functional states, others pertain to social interaction. Few measures include domains referring to activities, environment or finances. Then, on a higher level, existential-spiritual aspects are included (e.g., self-realization; spirituality, religion, personal beliefs). Finally and also on a higher level, domains contain subjective perceptions of one's overall view of life (e.g., life satisfaction; control; autonomy). Additionally, instruments differ in the way that domains have been assembled; they are either compiled bottom-up through representative surveys (OPQOL) or intercultural focus groups (WHOQOL-100, WHOQOL-OLD), or top-down through theoretical backgrounds (CASP) or the analysis of existing QoL-studies (QLI). In one measure, both approaches are combined (QOLPSV) and in one it is not further described (LEIPAD). The SEIQoL is the only measure in which domains are not predefined and that allows a personal determination of QoL-relevant life aspects. However, only the approach of the QOLPSV goes beyond the listing of QoL-determining life areas by considering not only major life domains but also aspects of being (status), becoming (actions) and belonging (participation).

Table 6. Domain names as depicted in the eight selected QOL-measures

	CASP	LEIPAD	QLI	QOLPSV	OPQOL	SEIQOL	WHOQOL-100	WHOQOL-OLD
Physical and mental health or functioning								
Health					x			
Physical							x	
Health and functioning			x					
Physical functioning		x						
Sensory abilities								x
Cognitive functioning		x						
Self-Care		x						
Psychological							x	
Psychological, spiritual			x					
Psychological and emotional well-being					x			
Depression and anxiety		x						
Pleasure	x							
Social interaction								
Social relations							x	
Social functioning		x						
Social relationships and participation					x			
Social participation								x
Social and economics			x					
Belonging				x				
Family			x					
Intimacy								x
Sexual functioning		x						
Activities								
Past, present and future activities								x
Becoming				x				
Environment								
Area: Home and neighborhood					x			
Environment							x	
Finances								
Financial circumstances					x			
Existential-spiritual aspects								
Self-realization	x							
Religion, culture					x			
Spirituality, religion, personal beliefs							x	
Death and dying								x
Perception of one's overall situation								
Life satisfaction		x						
Life overall					x			
Independence, control over life, freedom					x			
Level of independence							x	
Control	x							
Autonomy	x							x
Being				x				

Individualization: On domain-level the analysis showed that two instruments include a standardized assessment by prescribing QoL-domains and hence assuming that these domains are equally relevant for every individual (LEIPAD, OPQOL) and that six instruments trace

back to an individualized understanding of QoL (CASP, QLI, QOLPSV, SEIQOL, WHOQOL-100, WHOQOL-OLD). All of the instruments following an individualized approach integrate idiosyncratic aspects of the individual but to a varying extent. The SEIQoL represents the most individualized QoL-assessment by leaving the determination of crucial QoL-domains to the person, whereas the other instruments strike different balances between individualized and standardized assessments by a) allowing a personal weighing of the importance of certain dimensions (e.g., QOLPSV, QLI, WHOQOL-100), b) defining universal aspects like autonomy or pleasure that are likely to be crucial for everybody's QoL (CASP), c) applying so called single or global items with which respondents are able to estimate their QoL according to their own concept of QoL (WHOQOL-100: "How would you rate your quality of life?") or d) elaborating additional modules in order to respect specific characteristics of a target group, e.g., old age (WHOQOL-OLD).

Person x Environment: The examination of the instruments revealed that even though two instruments (OPQOL, WHOQOL-100) consider environmental aspects in special domains (see Table 6), items mainly focus on aspects that are specific for the person (e.g., health, social support, finances). However, in five out of eight measures items also refer to the environment in which the individual lives (OPQOL, QLI, QOLPSV, WHOQOL-100, WHOQOL-OLD). These items include different aspects like home (QLI: "How satisfied are you with your home, apartment, or place where you live?"), neighborhood (QOLPSV: "Having neighbors I can turn to."), security (OPQOL: "I feel safe where I live."), local facilities (OPQOL: "The local shops, services and facilities are good overall.") or access to medical services (WHOQOL-100: "How easily are you able to get good medical care?").

Activities: The analysis of the eight instruments revealed that two instruments consider activities in special domains (QOLPSV, WHOQOL-OLD, see Table 6) and that, in six instruments, items refer to aspects of doing (CASP, LEIPAD, QOLPSV, OPQOL, WHOQOL-100, WHOQOL-OLD). Although the number of items referring to activities is small, they embrace diverse actions ranging from activities of daily living, e.g., self-care (LEIPAD: "Are you able to get up and down the stairs without help?") or household activities (QOLPSV: "Doing work around my home (cleaning, cooking, etc.)."") to social participation, e.g., leisure activities (OPQOL: "I have social or leisure activities/hobbies that I enjoy doing.") or taking part in community activities (QOLPSV: "Participating in organized recreation activities."). None of the analyzed instruments entails items targeted at hypothetical activities that can be performed in case of need. But instead, three instruments address hypothetical aspects (OPQOL-35, QOLPSV, WHOQOL-100) in relation to resources such as

social support (e.g., QOLPSV: “Being able to count on family members for help.”) or access to medical care (e.g., WHOQOL-100: “How easily are you able to get good medical care?”).

Personal goals: The comparison revealed that none of the selected instruments explicitly integrates personal goals in the assessment of QoL, i.e., none of them ask about what an individual pursues in his or her life. The SEIQoL, which proved to be the most individualized QoL-measure, asks about the most important life domains at that time but not about wishes, expectations or goals. However, interpreting satisfaction scores as indicators of the extent of the gap between current and desired life situation (e.g., Calman, 1984; Michalos, 1985), several instruments (QLI, SEIQoL, WHOQOL-OLD, WHOQOL-100) at least provide information about the distance between the present and the target state.

Interrelations: Even though all selected measures are based on a multidimensional understanding, none of them takes their interrelation into consideration. By including importance-weighing of life domains, a few instruments (QLI, SEIQoL, WHOQOL-100) assess additional information about their relation to each other. In particular, the SEIQoL provides illuminating information about the relation among life domains since it assesses not only the mere importance of single domains but their relative importance to each other.

3.5 DISCUSSION

Clarifying the concept of QoL is probably one of the most fundamental and challenging tasks in research. But due to the long and interdisciplinary research history of QoL, a generally accepted operationalization is unrealistic. From a current point of view it is thus indicated to turn resources in research towards the empirical examination of the currently available QoL-conceptualizations in order to work out where they can be best applied. Thus, the present work takes a first step in this direction by presenting a review of existing QoL-operationalizations that are appropriate to assess QoL in healthy old age and by comparing them with the new *f*QoL-model. The findings can be interpreted as follows:

Multiple Multidimensionality: In line with the *f*QoL-model and the predominant consensus in literature, the analysis of the eight selected QoL-measures showed that all instruments are based upon a multidimensional understanding, which means that QoL is determined by more than one life domain. But even though domains are diverse and differently labeled, QoL-assessments are confined to the subjective evaluation of life domains in almost all analyzed instruments. Other possible QoL-determinants such as resources and activities, as suggested by the *f*QoL-model, are only partially integrated in items. Since QoL-measures do include further QoL-determinants but neither in a systematic way nor as

autonomous QoL-determinants, available QoL-measures might deliver a somewhat incomplete picture of QoL. Hence, a theory-driven extension of available QoL-assessments with additional determinants would supply a more comprehensive portrayal of a person's QoL.

Second, the analysis revealed that most measures are based upon individualized understandings of QoL. This is good news, especially regarding the implementation of empirical findings in practice, since there is rising awareness that knowledge resulting from between-subject analyses does not necessarily apply to specific individuals (Martin & Moor, 2012; Hamaker, 2012). The fact that the analyzed instruments operationalize individualization differently illuminates the balancing act between taking idiosyncrasies into account (for practical applications) and making results comparable between individuals (for empirical purposes). However, all approaches can be discussed controversially: Global items are contentious due to unclear reliability and biases (Wiggins, Netuveli, Hyde, Higgs, & Blane, 2008; Bowling, Hankins; Windle, Bilotta, & Grant, 2013), the contribution of universal domains (e.g., control, autonomy) to QoL depends on cultural and situational contexts (Cummins, 2005) and weighing the importance of prescribed domains and additional modules (including prescribed domains) are still at risk of neglecting personally relevant life areas. By leaving the determination of relevant life domains to the individual, the SEIQoL embodies the most individualized assessment of QoL.

Third, the finding that most measures include personal and environmental aspects is in accordance with the many existing QoL-definitions that understand QoL as the product of the interaction of an individual with its environment (e.g., Lawton, 1991). However, previous studies have shown that objective characteristics of a living environment are only moderately correlated with the subjective perception of QoL (e.g., Diener & Suh, 1997). This result stresses that it is crucial to consider the personal relevance of environmental characteristics. Questions like "How healthy is your physical environment?" (WHOQOL-100) can bias a QoL-assessment, since as long as an individual does not feel negatively affected by environmental circumstances, e.g., air pollution, QoL does not inevitably need to be reduced. Hence, following the individualized approach of *f*QoL and according to the individualized assessment of the SEIQoL, individuals should be allowed to define QoL-determining environmental aspects by themselves.

Fourth, the analysis showed that items do not solely refer to evaluations of current states of *being*, but also to evaluations of diverse facets of daily doing. This implies that most of the selected instruments understand QoL as a construct that goes beyond cognitive

evaluations. But even though activities seem to be an important aspect in the selected QoL-measures, in most measures they are not systematically integrated into the underlying QoL-conceptualization. According to the *f*QoL-approach, future QoL-measures should focus on a more comprehensive and systematic way of assessing activities in order to provide a comprehensive QoL-assessment.

Fifth, even though most measures include satisfaction judgments, which can be interpreted as indicators of the match between current and intended status in particular life domains, none of them explicitly integrates personal goals. However, integrating them into QoL-conceptualizations might promote an individualized QoL-assessment since personal goals comprise a very personal view on the current life situation. Assessing personal goals and hence the intended directions of development also means expanding the assessment of a very momentary snapshot of QoL (apparent in all examined measures) to a future perspective. This is pivotal, since knowing what a person is striving for helps to tailor interventions in practical settings to the specific situation of an individual. Furthermore, QoL-instruments considering personal goals might be better qualified for longitudinal applications. With repeated assessments of personal goal domains, more in-depth information will be gathered regarding processes behind the subjective perceptions of QoL, e.g., changing standards or values (Rapkin & Schwartz, 2004), and this in turn would strengthen the validity of QoL-assessments. Overall, the present findings show that personal goals are not sufficiently integrated into currently available QoL-measures in healthy old age.

Sixth, even though the SEIQoL provides information about the relative importance of QoL-domains, the finding that the selected instruments do not consider interrelations between QoL-determinants highlights that QoL has been defined as a fragmented concept, i.e., that QoL-determinants are supposed to influence QoL directly and independently from each other. The analyzed instruments are not able to depict dynamic processes behind subjective evaluations of life domains. But particularly in healthy old age where the long-term stabilization and maintenance and less so the improvement of health outcome measures (e.g., health, quality of life) are crucial, it is essential to know what processes determine QoL. From an empirical as well as from a practical perspective, it is thus important to know what has changed over time and has thus lead to changes in, e.g., satisfaction evaluations.

3.6 CONCLUSION

Comparing the conceptual features of the *f*QoL-model with existing QoL-measures revealed that most analyzed QoL-measures correspond with the conceptual elements of the *f*QoL-model, albeit on a basic level. All of them follow a multidimensional approach, with most of them also following an individualized approach that takes personal as well as environmental aspects into account and to a certain degree also activities of daily doing. But none of the analyzed measures goes beyond the traditional, albeit multidimensional, assessment of subjective evaluations of different life domains. The operationalization of individualization and the status of activities remain conceptually unclear and none of the currently available measures takes interactive processes between QoL-components into account. Even though the comparison made clear that the SEIQoL is the most suitable QoL-measure for assessing *f*QoL, its most obvious shortcoming is the neglect of personal goals. Following the *f*QoL-model, there is thus potential to further develop currently available QoL-measures or to develop a new *f*QoL-measure.

4 EXAMINATION OF THE FUNCTIONAL QUALITY OF LIFE (*F*QOL-)MODEL: EMPIRICAL APPROACHES TO ITS VALIDITY

4.1 INTRODUCTION

QoL is an important construct in age-related research and possible determinants have widely been discussed in previous research. The Functional Quality of Life (*f*QoL-)Model unifies three of them – personal goals, activities and resources – in one conceptual model for the first time (Figure 4, page 23). The *f*QoL-model defines QoL as the subjectively represented functionality of available resources to perform certain activities that are in turn conductive for the maintenance of personal goal domains or the achievement of specific goals within these domains. *F*QoL is supposed to be high when the individual is able to mutually adapt resources, activities and personal goal domains. Thus, having high *f*QoL implies a constant adjustment of the functionality of available resources, the necessity of performable activities and the content and relevance of personal goal domains. By postulating that interrelations between QoL-components are an autonomous QoL-component, the *f*QoL-model also emphasizes the possibility (or need) of actively shaping QoL by managing the match between its components. With this equation of QoL with individual management abilities, the *f*QoL-model encompasses a new conceptualization of QoL and thus it is worth making an effort towards its validation.

4.2 RESEARCH AIM

The main aim of the present study is the exploration of the face validity of the *f*QoL-model by using participatory research methods and the examination of the convergent validity by using qualitative methods.

4.3 METHODS

To explore the face validity of the *f*QoL-model two focus groups with professionals were conducted using a method of participatory research (Barnes & Taylor, 2009). To examine the face validity in healthy older people, a questionnaire was distributed among healthy older people that assessed their agreement with the ideas of the *f*QoL-model. In order to examine the convergent validity, data was raised in the same sample of older people with a newly developed *f*QoL-scale and with other existing and well-established QoL-measures that allow comparison of the *f*QoL-concept with other QoL-conceptualizations.

4.3.1 Sample and procedure

Both focus groups of professionals were attended by practical workers who had several years of professional experience. One group (N=19) was a class of prospective *Aktivierungsfachfrauen* (similar to occupational therapists) from the *medi* School in Bern, the other was a mixed group of social workers, psychotherapists and psychogerontologists from the greater Zurich area (N=7). In the first section of the focus groups the *f*QoL-model was introduced and in the second section open questions were clarified. In the third section attendees were asked to comment on the model and provide feedback regarding their impressions and thoughts. In the fourth and last session professionals received a short questionnaire on which they commented on the *f*QoL-model in written form. The experts' statements contained answers to the following four questions: 1) Do you see any connections between the *f*QoL-model and older people's quality of life? 2) Do you see any possibilities of applying the *f*QoL-model in your daily work? 3) Do you think you could derive interventional measures from the *f*QoL-model for your clients? and 4) Where do you see potential to further develop the *f*QoL-model? Minutes were taken for both focus groups.

Participants of the questionnaire study were recruited via e-mail register of the Center for Gerontology, University of Zurich (inclusion criteria: Age >60, officially retired and feeling healthy overall). After they consented to participation, they received the questionnaires (including a short socio-demographic questionnaire) by postal mail. Participants (N=42) were aged between 60 and 87 (M=69.3, SD=5.6), 31 were female (74%) and eleven were male (26%). Although all participants were retired, most of them were voluntarily engaged (n=24, 57%) or worked part time (n=7, 17%). Participants evaluated their general health as good (M=81.6, SD=14) on a ten-centimeter Visual Analogue Scale (VAS), whereby 100 indicates the highest score and they perceived themselves as highly active

(*M*=8.6, *SD*=1,2) on a 10-step-scale, where 10 describes a very active person (according to Bowling, 2008).

4.3.2 Measures

FQoL-questionnaire: With the *f*QoL-questionnaire, respondents were asked how much they agree with the conceptual ideas of *f*QoL. For that purpose the assumptions inferred from the (chapter 2.3) were transformed into eight easily understandable questions which were answered by participants on a 4-point-scale from *totally true* to *totally wrong* (items, see Table 7).

FQoL-scale: In order to assess *f*QoL in terms of the ability to manage and adapt available resources, performable activities and personal goal domains, the *f*QoL-scale was developed. The original *f*QoL-scale comprised ten items, of which three were omitted after initial factor analyses. The current version thus consists of seven items (Table 8), three of them refer to goal setting abilities (two positively, one negatively phrased) and four to resource management (three negatively, one positively phrased). The given responses ranged from *totally wrong* to *totally true* on a 5-point scale. The questionnaire was developed with a single scoring design ranging from seven points (lowest *f*QoL) to 35 (highest *f*QoL). The internal consistency of the final 7-item-scale is good with Cronbach´s α=0.82. Despite the relatively small sample, all *f*QoL-items show approximately normal distribution (results not shown here).

In order to prove the convergent validity of the newly developed *f*QoL-scale the following questionnaires were applied: The *SEIQoL-DW* (Schedule for the Evaluation of Individual Quality of Life – Direct Weighting, Browne, O'Boyle, McGee, McDonald, & Joyce, 1997) assesses the individual QoL by asking about the five most important life domains as well as the satisfaction with and importance of these domains. Even though the SEIQoL was originally conceptualized as a personal interview, it was here applied as a questionnaire. The *AQOL-8D* (Assessment of Quality of Life – 8 Dimensions, Hawthorne et al., 1999; Richardson, Kahn, & Iezzi, 2009) measures health-related QoL in a broad sense with regards to independent living, relationships, mental health, coping, pain, senses, self-worth and happiness. The SWLS (Satisfaction with Life Scale, Diener et al., 1985) assesses overall satisfaction with life with five items. The *GSE* (general self-efficacy-scale, Schwarzer & Jerusalem, 1995) measures the perceived coping with daily hassles as well as adaptation after stressful life events. The *TGP*- and *FGA-scales* (tenacious goal pursuit and flexible goal adjustment scale, Brandtstädter & Renner, 1990) measure assimilative and accommodative

coping strategies. Finally, respondents were asked to rate their *overall QoL* on a ten-centimeter Visual Analogue Scale, whereby 100 indicates the highest score.

4.3.3 Data analysis

Together with the written statements of the professionals the discussion of both focus groups were qualitatively analyzed based on the minutes. The *f*QoL-questionnaire replied by older people was descriptively analyzed and the *f*QoL-scale as well as the other applied QoL-measures were analyzed by calculating bivariate correlations (Pearson) in order to check the correlations between *f*QoL and other QoL-conceptualizations. Regarding correlation analysis, missing values were replaced with intrapersonal mean scores and all statistical analyses were conducted with SPSS Version 20.

4.4 RESULTS

4.4.1 Focus groups with professionals

In general, participants of both expert groups reported back that the *f*QoL-model seems an intuitively logical model to them. This was reflected by the fact that few questions emerged in the second section of the focus group. However, they noted that the terminology of the model could be better adjusted to the context of old age, since activities and goals might evoke inappropriate expectations.

Regarding the discussion and the questionnaire, their answers can be summed up as follows: In response to the question of whether they see connections between the *f*QoL-model and older people's QoL, attendees widely agreed. They emphasized the importance of available resources, especially external ones that are indispensable for high QoL in old age. Furthermore, according to their expertise, it is crucial not to evaluate life as a whole but to differentiate between different life domains and to consider their qualities separately.

Regarding the question about the possibility to apply the *f*QoL-model in their daily work, attendees reported that they, at least in parts, already organize their daily work according to the *f*QoL-model. They usually ask their clients what is important for them (personal goals), what capabilities they have and how much support they get (resources) and what they can be offered to help in realizing their personal goals (activities). However, they pointed out that applying the model accurately would only be possible in cases of healthy older adults since a cognitively impaired person might not be able to provide information about resources or goals. Hereto professionals suggested wrapping the assessment of personal

goals up in questions such as “If I was a fairy what would you wish?” At this point, they also mentioned that resources are often not visible and need to be explored by asking clients indirectly about how they do their shopping, about what they like doing or about how their grandparents used to deal with problems. At the same time, professionals also stressed that information about a client is most often gained through observation and not interrogation.

With respect to the question of whether they think they could derive interventional measures for their clients, attendees reported that from individualized *f*QoL-portrayals it might be possible for them. For example, in the case of high aspiration levels, they would suggest supporting the client in reinforcing available resources and in adjusting goal domains. But again, attendees gave feedback stating that only a few of their clients would be able to express so decidedly that the derivation of such interventions would be indicated. However, most of the attendees acknowledged the future perspective of the *f*QoL-model due to the consideration of personal goals and they widely appreciated the possibility of visualizing a person’s QoL.

In response to the question of where they see potential for improving the *f*QoL-model, attendees criticized that the *f*QoL-model neglects systemic aspects, e.g., the possibility that goal-related activities can be performed by relatives must be regarded as a central resource in old age. Furthermore, the model should integrate proxy reports of resources, especially in cognitively reduced clients, since, according to their experiences, they are inclined to over- or underestimate their available resources.

4.4.2 Questionnaires

FQoL-questionnaire: Descriptive statistics of the term-related *f*QoL-questionnaire show that participants generally agree with the concept of *f*QoL (Table 7). Most distinctly, they support the ideas that *f*QoL depends on more than one life domain, that QoL is higher if personal goals refer to more than one life domain and that activities are more powerful for QoL if they are linked with personal goals. Only the negatively worded item purporting that pure step training is equally conducive for QoL as the attendance of a dancing class was not replied to in the expected way.

fQoL-scale: Descriptive statistics of the newly developed *f*QoL-scale show that participants have high *f*QoL, i.e., that they evaluate themselves as good managers of their resources, activities and goal domains (Table 8).

Table 7. Descriptive statistics of the *f*QoL-questionnaire (English translation)

	M	SD
The more resources a person has (number) the better his or her quality of life is.	3.02	0.78
The better the resources of a person are (quality) the better his or her quality of life is.	3.17	0.79
Pure step sequence training can have an equally positive influence on quality of life as a regular attendance at a dancing class.	2.25	0.87
The more a person actually needs his or her resources for daily life the higher his or her quality of life is.	2.86	0.84
Activities that are related to personal goals are more positive for quality of life than activities that are carried out for their own sake.	3.44	0.63
Quality of life depends on several life domains.	3.79	0.42
The quality of life of a person is higher if personal goals refer to different life domains (e.g., family, health, leisure).	3.61	0.59
Quality of life of a person is high if he or she has enough time to achieve what he or she intended to.	3.00	0.74

Note. Given answers ranged from 1 (totally wrong) to 4 (totally true).

Table 8. Descriptive statistics of the *f*QoL-scale after scale adjustment (English translation)

	M	SD
Altogether, I am able to adapt my personal goals to my current life situation.	4.19	0.86
Sometimes I feel overwhelmed with what is going on in my life. *(recoded)*	3.98	1.00
Usually my goals are realistic.	4.17	0.70
Sometimes I feel that I could achieve more than what my daily life demands. *(recoded)*	3.40	1.21
Mostly I feel accurately challenged in my daily life.	3.71	1.00
I often feel that I cannot use all my skills and capabilities in a proper way. *(recoded)*	3.71	1.04
In my daily life I am often stretched to my limits, because my goals proved to be too ambitious. *(recoded)*	3.98	0.98
Total	27.02	4.74

Note. Given answers ranged from 1 (totally wrong) to 5 (totally true), maximal score: 35.

The correlation pattern between the *f*QoL-scale and other measures is consistent (Table 9), showing that the *f*QoL-scale is strongly correlated with other QoL-instruments (SEIQoL, AQOL-8D, SWLS, global QoL) and that *f*QoL is associated with self-efficacy and flexible goal adjustment but not with tenacious goal pursuit. Further in-depth analysis (results not shown here) revealed close relations between *f*QoL and psychological and social subscales (mental health, luck, self-efficacy, coping, social relations) of the health-related QoL-instrument AQOL-8D (r=.58**- .70**).

Table 9. Correlation matrix of the *f*QoL-scale with other QoL-measures

	Global QoL	SEIQoL	AQoL-8D	SWLS	TGP	FGA	GSE
***f*QoL**	0.60**	0.64**	0.72**	0.65**	0.27	0.62**	0.59**
Glob. QoL		0.42**	0.58**	0.58**	-0.04	0.35*	0.38*
SEIQoL			0.58**	0.50**	0.03	0.48**	0.53**
AQoL-8D				0.75**	0.15	0.59**	0.74**
SWLS					0.28	0.52**	0.67**
TGP						0.12	0.34*
FGA							0.69**

Note. N=42, * significant on p<.05 (2-tailed), ** significant on p<.01 (2-tailed). SEIQoL=Schedule for the Evaluation of Individual Quality of Life, AQoL-8D=Assessment of Quality of Life – 8 Dimensions, SWLS=Satisfaction with Life Scale, TGP=Tenacious Goal Pursuit, FGA=Flexible Goal Adjustment, GSE=General Self-Efficacy-Scale.

4.5 DISCUSSION

In the present study, a first approach was undertaken to empirically examine the validity of the newly developed *f*QoL-model, which defines *f*QoL as the subjective perception of the functionality of resources to perform goal-related activities. This was done by conducting focus groups (participatory approach) and raising questionnaire data (quantitative approach).

The results of the focus groups indicate that professionals generally approve of the idea of *f*QoL and that they already proceed, at least to a certain extent, according to the *f*QoL-model in their daily work. This is a positive finding that indicates the practical character of the *f*QoL-model. By repeatedly pointing out that the model could be too complex for cognitively affected older people, attendees confirmed the initially intended target group of healthy older people for which the model was originally designed. However, applying the model to cognitively impaired older people obviously requires the development of appropriate measures, possibly not only based on self-reports but also on observations or proxy-reports. In addition it might be worth further developing the *f*QoL-model by including systemic elements more systematically (e.g., goals of close relatives) in order to ensure a comprehensive picture of an older person's QoL, irrespective of the respondent's cognitive status. Finally and as discussed in other gerontological research strands (e.g., successful aging, Schroeter, 2004), the terminology should be carefully chosen in order to avoid negative associations (e.g., weight of expectations).

Older people also widely agree with the premises of the *f*QoL-model, except for the assumption that complex activities are more advantageous for QoL than performing single

exercises. This might be due to the somewhat unrealistic example presented in the questionnaire or due to the complexity of the underlying assumption. However, these findings confirm that the *f*QoL-conceptualization is compatible with the QoL-notion of a selected group of healthy and active older people. Furthermore, middle to strong correlations between the newly developed *f*QoL-scale and other QoL-measures point out that *f*QoL conceptually overlaps with existing QoL-operationalizations. Concerning this, a remarkable finding is that *f*QoL-scores strongly correlate with flexible goal adjustment but weakly with tenacious goal pursuit. This is in line with what the *f*QoL-model claims: High QoL requires a constant and flexible adjustment of several factors, including goals, especially in old age where resources, activities or goals can change quickly, e.g., due to a fall or a diagnosis. In fact, previous studies have endorsed that strategies of changing the self (e.g., goal adjustment, reorientation, prioritization) increase whereas strategies of changing the environment (e.g., use of compensatory means, behavior change) decrease with age (e.g., Brandtstädter & Renner, 1990).

4.6 CONCLUSION

Using methods of participatory and quantitative research in the present study, a first approach was undertaken to explore the face validity and examine the convergent validity of the *f*QoL-model. Even in the circumstances of difficult validity proving due to the absence of a gold standard in measuring QoL, the *f*QoL-model turned out to be a valid theoretical framework for empirical studies as well as for practical work. The model can serve as a basis to develop new and more individualized QoL-measures for empirical purposes and it might function as a theoretical basis for developing client-centered intervention to enhance QoL. Although additional research is needed to anchor the *f*QoL-model in real data, the present study contains several starting points regarding future research on *f*QoL, e.g., further development of the *f*QoL-model regarding cognitively impaired older people, revision and refinement of the *f*QoL-scale.

5 APPLICATION OF THE FUNCTIONAL QUALITY OF LIFE (*F*QOL-)MODEL: GENERATING PERSONALIZED *F*QOL-PORTRAYALS

5.1 INTRODUCTION

As the previous chapters of the current work have demonstrated, the *f*QoL-model (Figure 4, page 23) includes several conceptual elements, which makes it a promising theoretical framework for further research. Especially due to its future- and action-orientation the *f*QoL-model seems appropriate for practical implementations. However, it is yet unclear if older people are able at all to provide detailed information about the characteristics of *f*QoL-components (personal goal domains, activities, resources and their interrelations) and there is also an open question of whether personal lives can be depicted in *f*QoL-formats.

5.2 RESEARCH AIM

The main aim of the present study is to work out how well life aspects that determine subjective QoL can be depicted in the standardized format of the *f*QoL-model. Research questions were thus the following:

1) Are healthy older people able to provide information about personal goals, activities, resources and their interrelations?

2a) Is it possible to generate individualized *f*QoL-portrayals?

2b) If yes, how extensive are the generated *f*QoL-portrayals, i.e., how many *f*QoL-components does an averaged *f*QoL-portrayal contain?

3) Do individualized *f*QoL-portrayals correspond with QoL-determining life areas assessed with an established QoL-measure (SEIQoL)?

5.3 METHODS

Using a structured interview format, qualitative interviews were conducted with healthy older people to generate individualized *f*QoL-portrayals. The face-to-face interviews took place at the Center for Gerontology in Zurich, lasted approximately one and a half hours and were conducted by two trained researchers (including the author). Participants were a subsample of the validation study in chapter 4, of which eleven consented to be personally interviewed. As in the validation study, participants received a set of questionnaires by postal mail, which they brought along to the personal interview.

5.3.1 Questionnaires

Among the original set of questionnaires (see chapter 4.3.2) the following were analyzed in the present study: The *socio-demographic questionnaire* containing questions about age, gender, subjective health, subjective quality of life, life satisfaction, occupational status, educational level, level of daily activity and one question about how often respondents set personal goals and the SEIQoL-DW (Schedule for the Evaluation of Individual Quality of Life – Direct Weighting, Browne et al., 1997) assessing the individual QoL by asking about the five most important life domains as well as the satisfaction with and importance of these domains.

5.3.2 Personal *f*QoL-interviews

In the personal *f*QoL-interview the *f*QoL-components were assessed stepwise. First, participants were asked about personal goal domains, then about activities and their relations to goal domains and finally about resources that are required for the mentioned activities. Assuming that personal goal domains are not fully consciously represented, respondents were asked to initially express their thoughts, emotions, wishes and dreams regarding their current life situation. Answers were noted in an abbreviated form by the interviewer and were then presented to the participant. On the basis of these notes, participants were requested to sum up their answers to several goal domains that subjectively determine their QoL (written down on differently colored sheets). By asking about wishes and dreams the *f*QoL-interview follows a future-oriented approach, which differentiates from the questioning technique of the SEIQoL, that only asks about what makes the respondent currently happy or unhappy and what actually determines his or her QoL (O'Boyle, McGee, Hickey, O'Malley, & Joyce, 1992). After defining personal goals, participants were asked to report the activities they do on a typical

day (written down on post-its) and assign them to the previously defined goal domains (on colored sheets). Then participants were asked to determine what resources are needed to perform these activities through posing an open question. Such a structured approach with illustrating elements has proved feasible in practical settings (Vonholt & Kandziora, 2009).

5.3.3 Data analysis

Data resulting from each personal *f*QoL-interview was transformed into a unified *f*QoL-portrayal and all of them were then quantitatively analyzed and qualitatively compared with the results of the SEIQoL questionnaire.

5.3.4 Sample

The two men (18.2%) and nine women (81.8%) participating in the study were aged between 60 and 87 (*M*=71.6, *SD*=8.26) and reported good general health (*M*=72.3, *SD*=17.6) on a Visual Analogue Scale. Eight participants (72.7%) were married and three were single or widowed. Eight had a secondary school degree and ten (90.9%) reported to be professionally or voluntarily engaged, even though they were all officially retired. That participants were a very active group of healthy older people was also reflected in the high scores of activity in daily life (*M*=8.7, *SD*=1.6) on a 10-step-scale, where 10 describes a very high level of being active (according to Bowling, 2008). Furthermore, participants reported setting personal goals quite frequently (*M*=7.6, *SD*=1.9), also on a 10-step-scale, where 10 represents the highest frequency. Regarding subjectively perceived QoL, participants reported high global QoL (*M*=75.3, *SD*=21.5) on a Visual Analogue Scale and also high individual QoL assessed with the SEIQoL (*M*=74.4, *SD*=16.1).

5.4 RESULTS

In general, the personal *f*QoL-interviews revealed that healthy older people are able to provide information about *f*QoL-components and, as Figure 5A-K indicates, that it is basically possible to generate individualized *f*QoL-portrayals. However, an overall look at the eleven *f*QoL-portrayals reveals a certain incompleteness, especially regarding resources and interrelations. Even though the visualizing approach proved to be helpful, participants experienced difficulties in determining required resources comprehensively and in establishing the connection between *f*QoL-components, especially between resources and

activities. As a result of this, interrelations were not included in further analyses and findings regarding resources must be carefully interpreted.

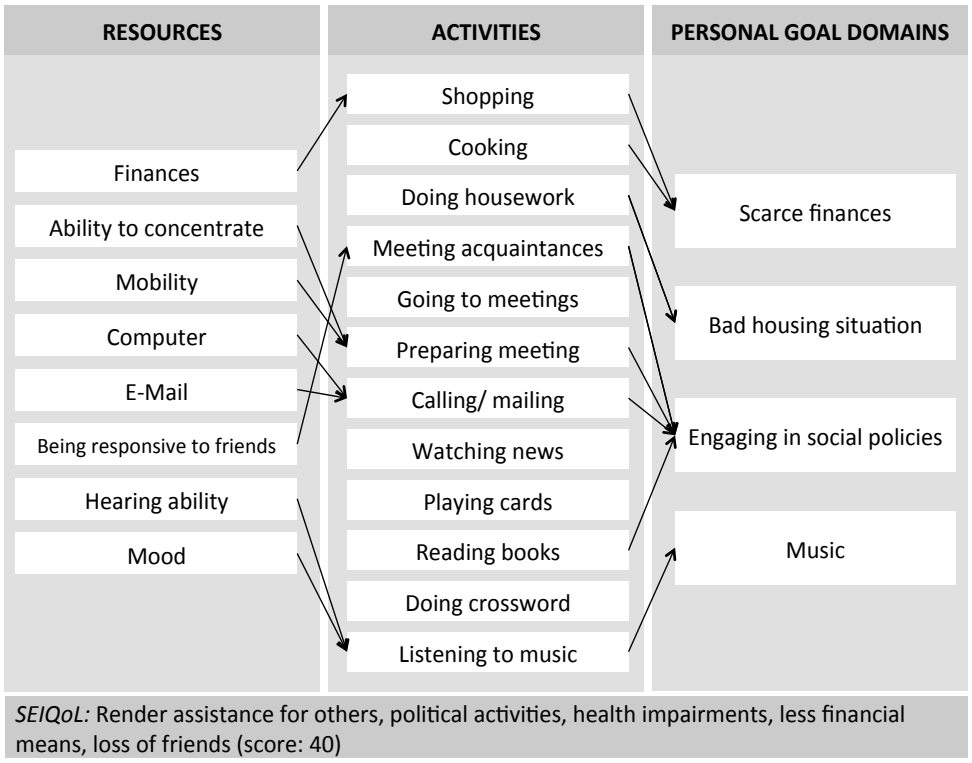

Figure 5A. Individualized *f*QoL-portrayal of an 87-year-old woman

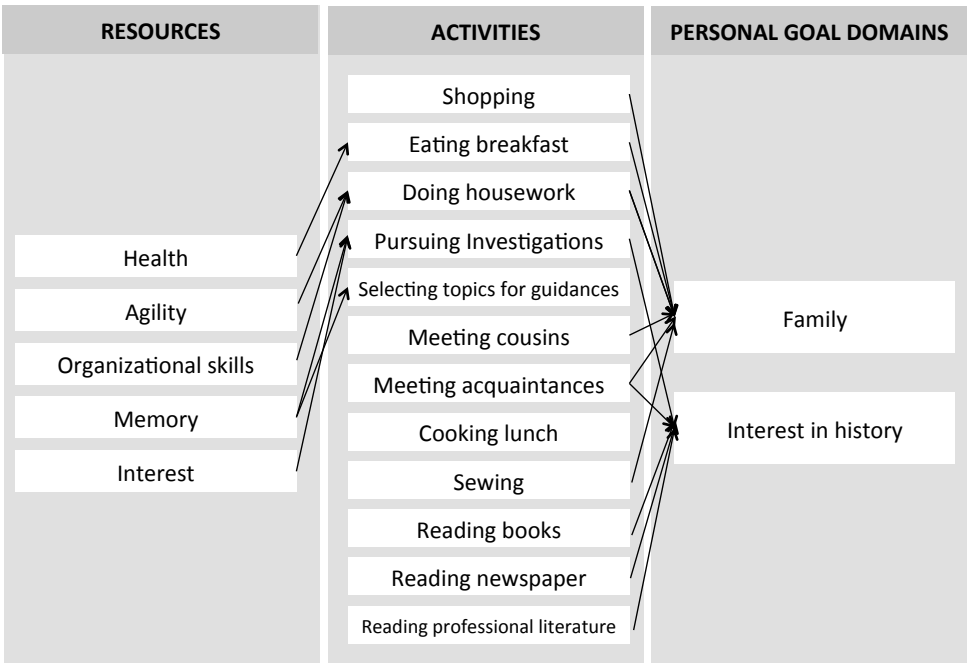

Figure 5B. Individualized *f*QoL-portrayal of a 78-year-old woman

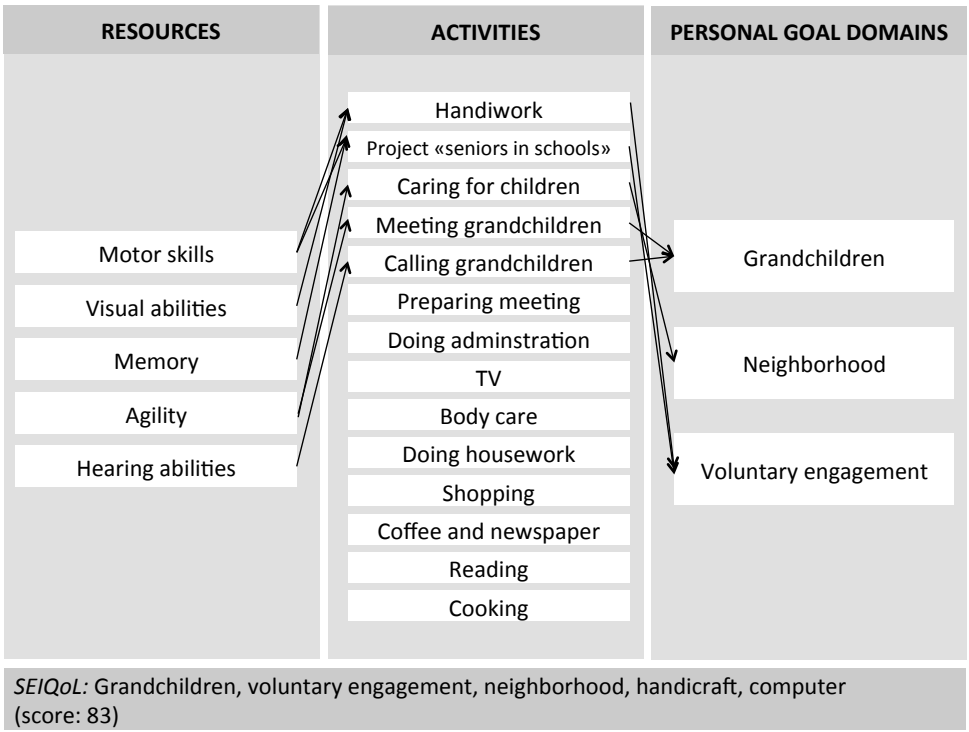

Figure 5C. Individualized *f*QoL-portrayal of a 74-year-old woman

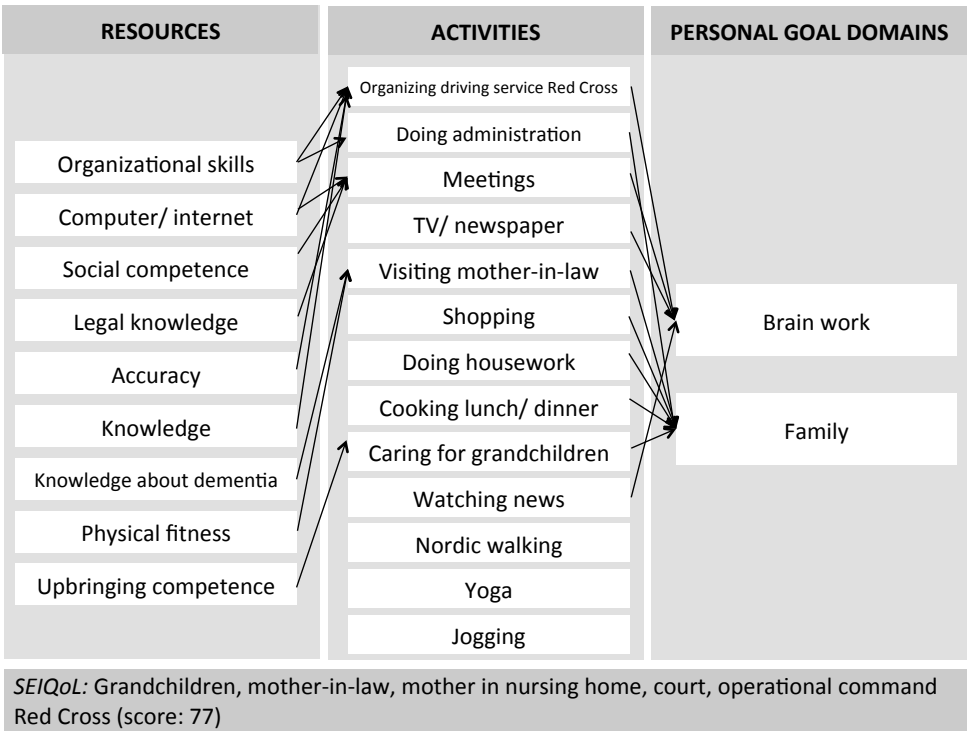

Figure 5D. Individualized *f*QoL-portrayal of a 64-year-old woman

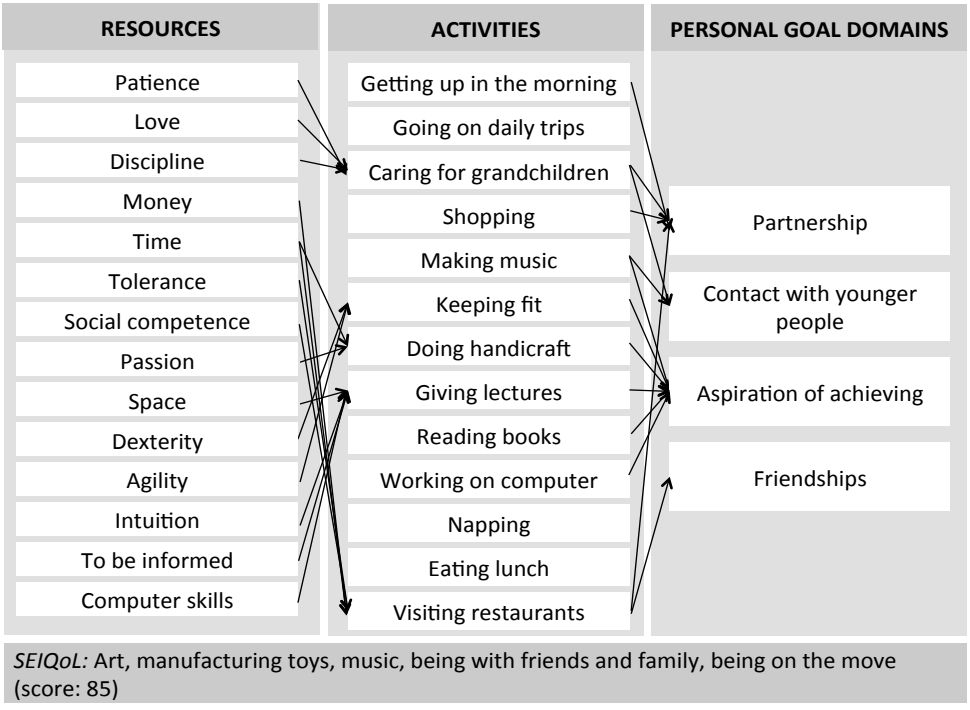

Figure 5E. Individualized *f*QoL-portrayal of a 75-year-old man

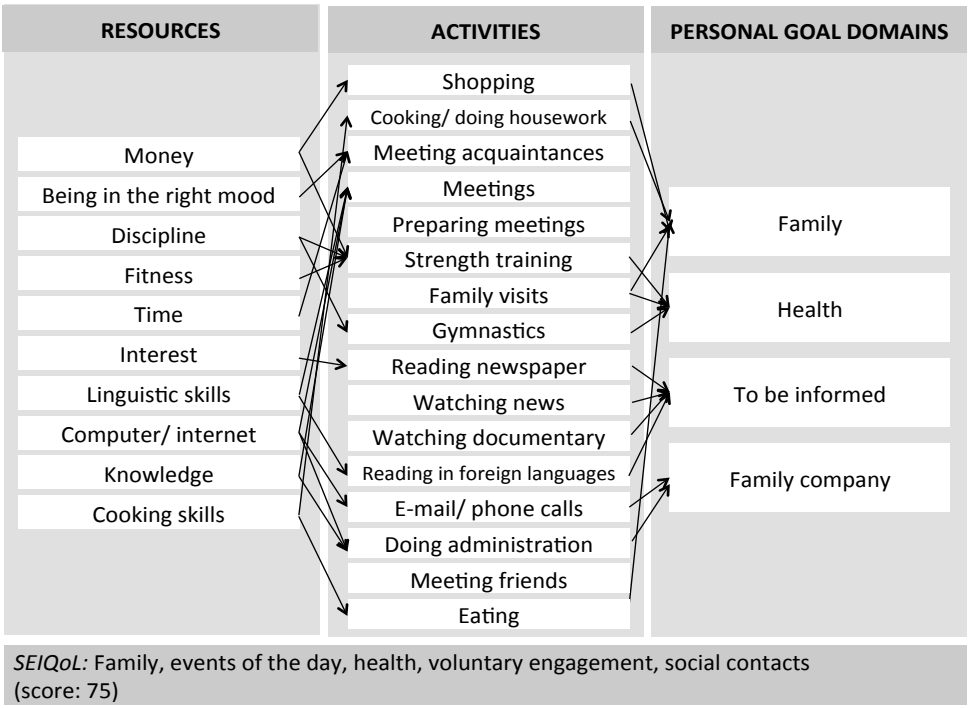

Figure 5F. Individualized *f*QoL-portrayal of a 77-year-old woman

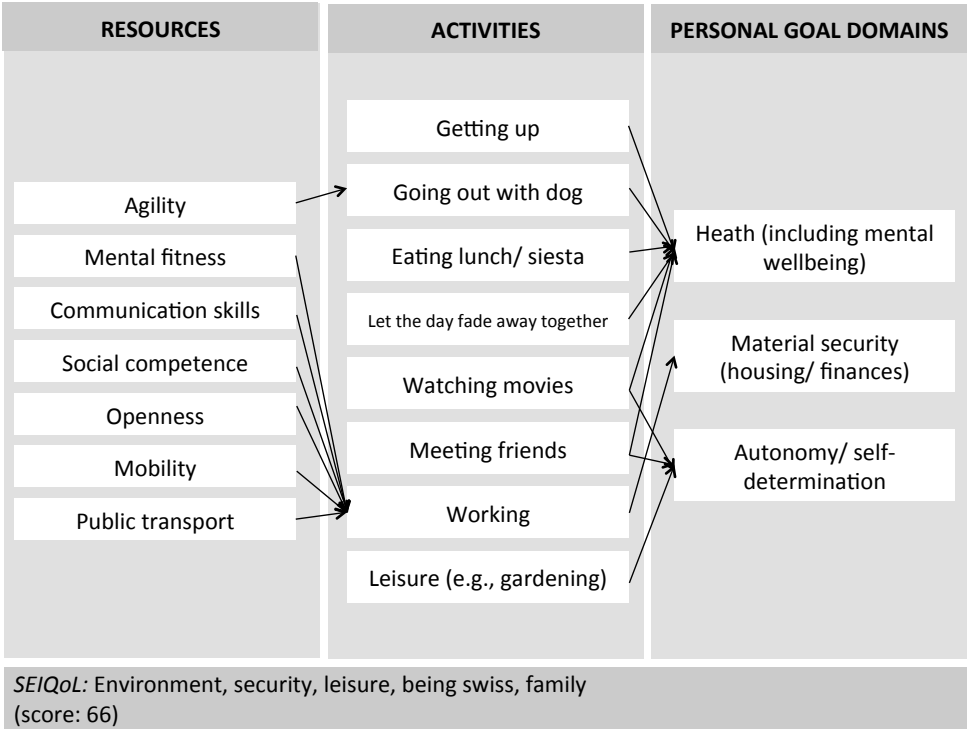

Figure 5G. Individualized *f*QoL-portrayal of a 61-year-old man

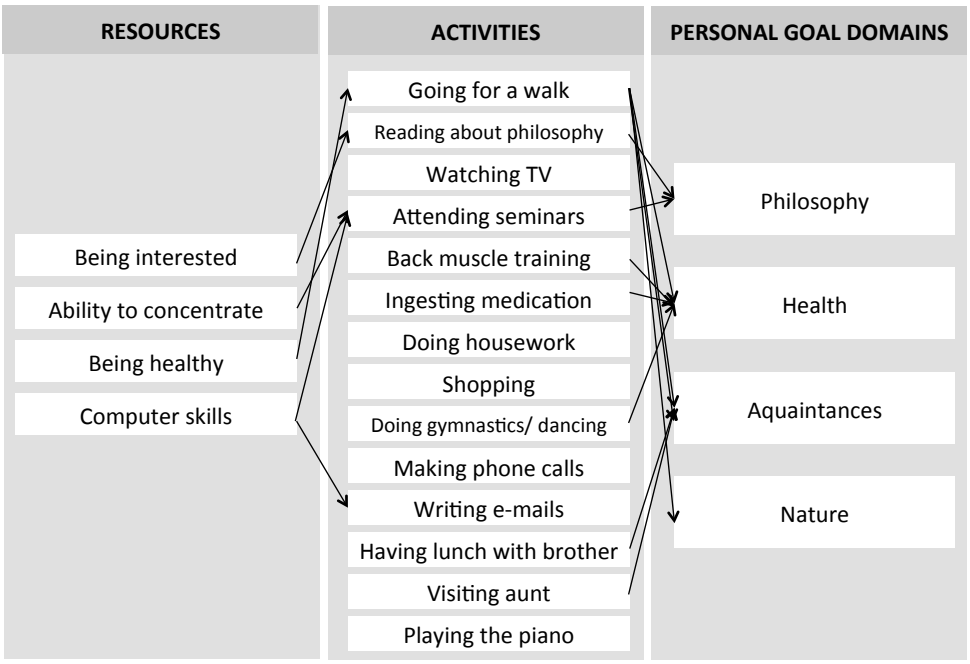

Figure 5H. Individualized *f*QoL-portrayal of a 76-year-old woman

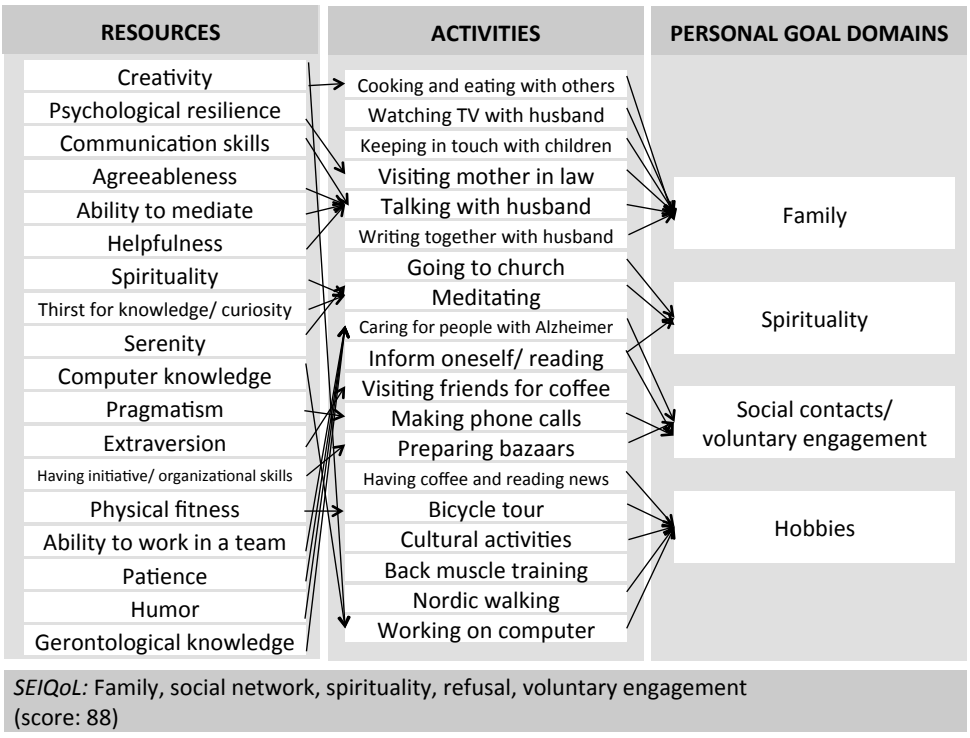

Figure 5I. Individualized *f*QoL-portrayal of a 67-year-old woman

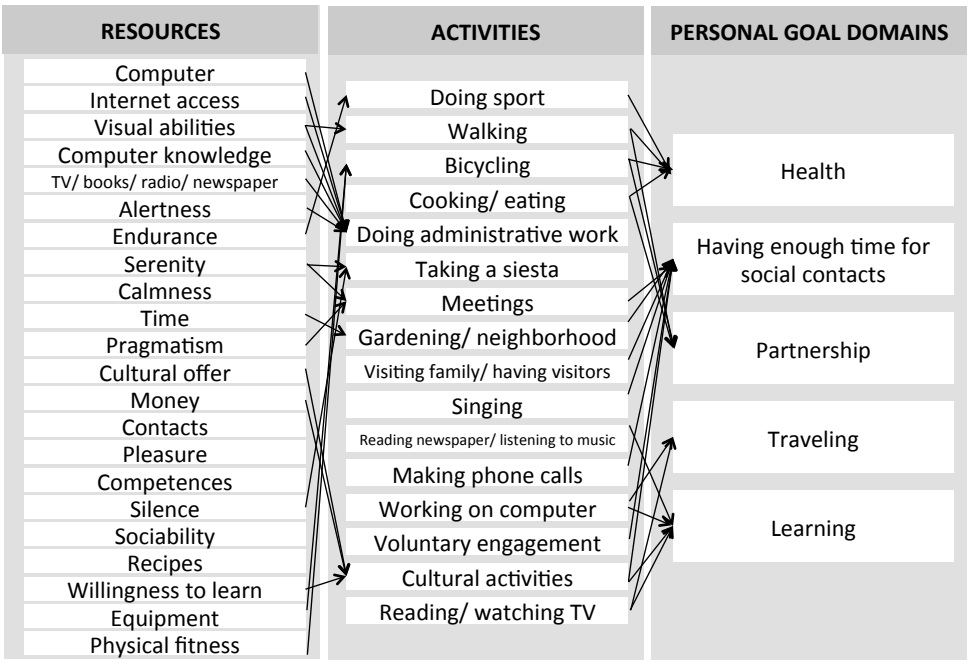

Figure 5J. Individualized *f*QoL-portrayal of a 60-year-old woman

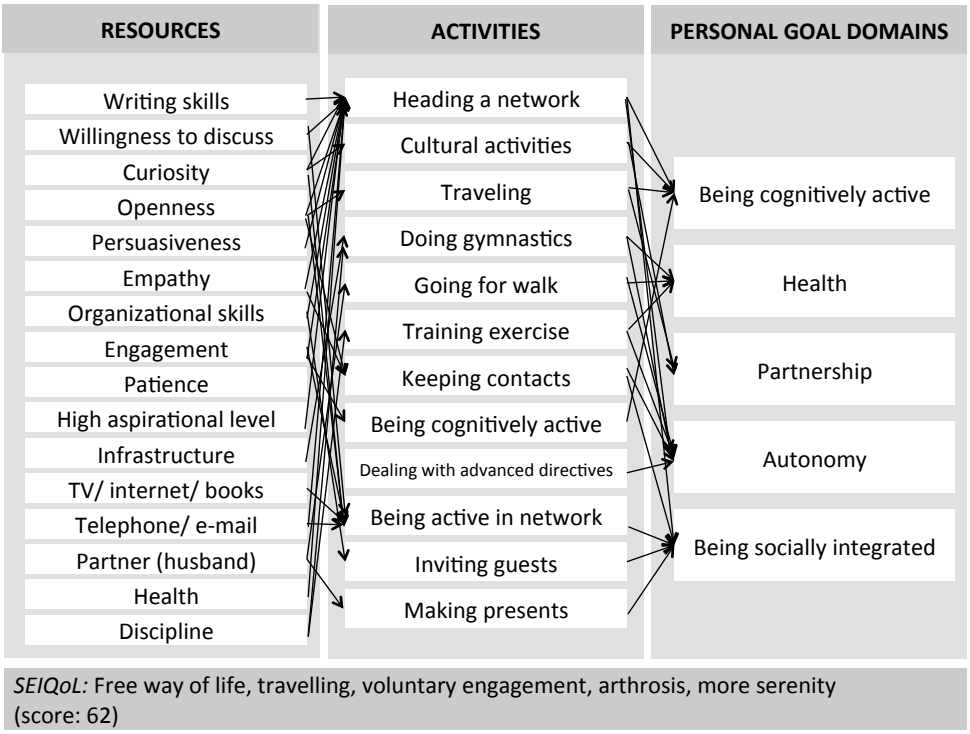

Figure 5K. Individualized *f*QoL-portrayal of a 68-year-old woman

Figure 5A-K. Individualized fQoL-portrayals of eleven healthy older people

The number of *f*QoL-components mentioned by participants is shown in Table 10. The counting reveals that none of the participants named more than five goal domains, meaning that the *f*QoL-interview did not, from a numerical perspective, disclose more life areas than the SEIQoL-assessment. The counting further shows great interindividual variability in the number of mentioned activities and resources. But, as mentioned above, defining resources was a hard task for participants and the results can thus hardly be interpreted. With this in mind, it can be said that an averaged *f*QoL-portrayal consists of four goal domains and 14 activities. Based on the data, it can also be argued that QoL-determining goal domains and activities should comprehensively be educible within five goal domains and 19 activities.

Table 10. Numbers of mentioned *f*QoL-components in individualized *f*QoL-portrayals

	M	**SD**	**Range**
Goal domains	3.5	0.9	2-5
Activities	13.9	2.9	8-19
Resources	10.2	5.7	4-22

Comparing the *f*QoL-portrayals with the life domains that emerged with the SEIQoL-assessment showed that the two assessments do not fully correspond. Several life domains (SEIQoL) do not appear in goal domains (*f*QoL) and vice versa. However, most life domains that did not come out in goal domains were represented in activities (see Figure 5B, 5C, 5E, 5F, 5G, 5H, 5J, 5K), meaning that in the *f*QoL-portrayals central life aspects were not only represented in goal domains but also in activities. Categorizing goal domains (*f*QoL) and life domains (SEIQoL) revealed that they could be divided in similar categories (except two life domains (SEIQoL) that did not fit into the category system, Table 11 and Table 12). Considering the ranking order, it becomes apparent that with both assessments leisure activities and social contact turned out to be the most crucial QoL-determinants. However, it seems that QoL assessed with the SEIQoL is predominantly determined by leisure activities, whereas QoL assessed with the *f*QoL-interview is more the result of social contacts. A considerable finding is that negative life aspects predominantly emerged with the SEIQoL-assessment (see Figure 5D, 5H, 5I, 5K) but less so with the *f*QoL-interview (except Figure 3A).

Table 11. Goal domains assessed with the *f*QoL-interview (original quote)

Life areas	Mentioned goal domains	Total
Social contacts	Friendships, acquaintances, social contacts and voluntary engagement, being socially integrated, having enough time for social contacts, neighborhood, contact with younger people	8
Family	Family (4), partnership (3), grandchildren	8
Leisure	Music, nature, hobbies, traveling, interest in history, engaging in social policies	6
Health	Health (5)	5
Cognition	Brain work, to be informed, philosophy, being cognitively active, learning	5
Engagement	Voluntary engagement, family company, aspiration of achieving	3
Finances	Scarce finances, material security	2
Autonomy	Autonomy (2)	2
Environment	Bad housing situation	1
Spirituality	Spirituality	1

Note. In parentheses the sum of participants mentioned the particular life domain.

Table 12. Life domains assessed with the SEIQoL (original quote)

Life areas	Mentioned life domains	Total
Leisure	Enjoying nature, being on the move, court, computer, handicraft, art, manufacturing toys, music, playing the piano, having time, leisure, traveling and languages, traveling, interests, political activities	15
Social contacts	Relatives and friends, neighborhood, being with friends and family, social contacts, friendships, social network, refusal, maintaining social contacts, loss of friends	9
Family	Family (4), grandchildren (2), mother-in-law, mother in nursing home	8
Health	Backache, arthrosis, health (2), health impairments, cooking	6
Engagement	Voluntary engagement (4), operational command Red Cross, render assistance for others	6
Cognition	Events of the day (2), delight in thinking	3
Finances	Security, less financial means	2
Environment	Environment, being Swiss	2
Autonomy	Free way of life	1
Spirituality	Spirituality	1
Others	More serenity, discontent about uncertainty	2

Note. In parentheses the sum of participants mentioned the particular life domain.

5.5 DISCUSSION

Since the *f*QoL-model proved to be an auspicious theoretical framework in the previous chapters of this work, its fit with real life was tested in the present study. Eleven face-to-face

interviews were conducted during which individualized *f*QoL-portrayals were generated by asking participants about personal goals, daily activities, required resources and their interrelations.

Overall, the present study demonstrated that healthy older people are able to provide information about their personal goals and daily activities, but that they had trouble in naming resources and determining interrelations between *f*QoL-components. Although the study group was quite homogeneous regarding age, education, health and activity level, the comparison of the *f*QoL-portrayals disclosed highly individualized models. This is in fact a positive result showing that idiosyncratic aspects can be depicted with the *f*QoL-model. Furthermore, due to the participants' active lifestyle, most *f*QoL-portrayals are characterized by a high degree of complexity regarding number and content of goal domains and activities. This might also be the reason why participants were overwhelmed when determining resources and interrelations exhaustively. However, high complexity can be rated as an indicator of high *f*QoL, since it implies diversity among and good associations between resources, activities and goal domains.

According to the data, it seems that subjective QoL-determinants could be comprehensively represented within five goal domains and 19 activities. This is an important result for the further development of the *f*QoL-interview, since it allows focusing on a predefined number of variables and it might facilitate the development of an *f*QoL-scoring system. But it must be taken into account that the study sample is not representative, and as the question about goal setting tendencies revealed, it is a group of very active people that are used to reflect their current and future life situation. Furthermore, unlike personal goal domains that could be compared to the SEIQoL-life domains, there is no validation criterion for activities. The great interindividual differences in the number of mentioned activities and the fact that some participants mentioned activities referring to basic activities of daily life (e.g., getting up in the morning), whereas others mentioned very particular activities (e.g., heading a network), might also be the result of how participants understood the task of listing daily activities.

The finding that goal domains (*f*QoL) and life domains (SEIQoL) only partially correspond might be ascribed to the future-oriented questioning technique of the *f*QoL-interview. In contrast to the SEIQoL, wishes and dreams are explicit parts of the assessment procedure in the *f*QoL-interview. This could also be the reason why negative life aspects did not appear in *f*QoL-portrayals, since healthy older people with high subjective QoL anticipate a positive future. Regarding that, the *f*QoL-portrayals contain important indications of what an

individual could do in order to maintain and actively stabilize his or her subjective QoL in the long term. Individualized *f*QoL-portrayals could thus serve as a basis for establishing tailored interventions or as a rationale for decisions regarding which intervention can best be implemented at a given time. Beyond that, the repeated generation of individualized *f*QoL-portrayals of the same person allows an in-depth monitoring of what has changed over time, through interventions (e.g., in practical settings) or without interventions (e.g., for empirical purposes).

However, according to the current state of development of the *f*QoL-interview as an instrument to elicit individually relevant QoL-determinants, it is not yet possible to quantify the assessed information. The *f*QoL-portrayals do not allow inferring whether a person experiences high or low QoL. Hence, future research should focus on how and with which additional variables data on personal goals, activities, resources and their interrelation can be transferred into values in order to make data comparable between individuals and within individuals over time.

5.6 CONCLUSION

The present study basically acknowledges that personalized *f*QoL-portrayals can be generated through personal conversation. According to the present data it can be assumed that the *f*QoL-interview provides a more comprehensive picture about a person's QoL-determining life aspects than established QoL-measures. However, reporting resources and interrelations between *f*QoL-components turned out to be a challenging task for participants. To face this in future research, studies could focus either on specific (and possibly problematic) life domains (e.g., cognition, health, social relations) or on specific target groups with even more homogenous living situations, for example, due to particular circumstances (e.g., multimorbidity, partner with dementia). Such constraints are likely to reduce complexity and might allow an expressive picture of (domain-specific) QoL-determinants that are pivotal for the subjective perception of QoL.

6 SUBJECTIVE STRATEGIES OF STABILIZING QOL IN DAILY LIFE OF HEALTHY OLDER PEOPLE: AN EXPLORATIVE STUDY

6.1 INTRODUCTION

Due to demographic changes and increasing life expectancy the number of people spending their retirement in good health has grown (Swiss Federal Statistical Office, 2005; Walker, 2004; Walker & Maltby, 2012). It is a defined goal of Switzerland to enable its citizen to lead a satisfied and fulfilling life with a high level of QoL (Swiss Federal Department of Home Affairs, 2013). With regard to a healthy, active population of older people, such a national focus requires not only the prevention and rehabilitation of diseases but also support for interventions aimed at the maintenance of the status quo. Thus the maintenance of QoL at a subjectively satisfying level is as a central task of future research. But, up to now, studies on QoL have primarily embodied a science of change rather than a science of maintenance (Martin et al., 2012a). Consequently, research has mostly been concentrated on detecting predictors and risk factors of low QoL and interventions addressing QoL have mostly been about improving QoL and not about maintaining and stabilizing it. Likewise, researchers have mostly dealt with individuals experiencing reduced QoL and with how they handled these adverse situations.

However, the process of maintaining or stabilizing QoL in phases of satisfying QoL is likely to differ from the process of improving or enhancing QoL in phases of low QoL for two reasons. First, the recovery of QoL in adverse situations might be an urgent need of the individual and is therefore supposed to be a consciously represented personal goal, while in phases of stable QoL the maintenance of QoL is likely to be less salient as well as the need to take action to stabilize it. Second, coping with losses in order to regain the original level of QoL is expected to require the temporary application of strategies that cause immediate, profound and far-reaching positive changes in perceived QoL (e.g., accepting assistance, changing the environment, distracting activities), whereas the stabilization of QoL in order to maintain a high level of QoL is believed to require an ongoing application of strategies that

enable fine and subtle regulation and calibration (e.g., adapting goals, social comparisons, adjusting expectations).

Thus, in contrast to the question of how older people cope with adverse life situations, the question of how older people stabilize their QoL in phases of satisfying QoL has hardly been examined so far. And healthy individuals have rarely been the central subjects of research, even though they can be taken as experts in living well (exceptions can be found in the research strand of active aging).

6.1.1 Stabilisation of *f*QoL

QoL has recently been claimed to be a dynamic construct, meaning that QoL can be seen as something that constantly needs to be adjusted to what happens within the person-environment-structure (Walker, 2005; Eicher et al., 2014). This ongoing process of creation requires constant orchestration of individually relevant QoL aspects. In terms of the *f*QoL-model this means that personal goal domains, activities and resources need to be regularly reevaluated regarding satisfaction (goal domains), effectiveness (activities) and functionality (resources) (Figure 6). If an individual succeeds in orchestrating the *f*QoL-components by performing resource-regulating activities it is likely that he or she will experience stable QoL over time. Thus, what remains stable over time is neither the specific combination of required resources or activities nor the contents of relevant goal domains, but the performance of resource-regulating and goal-related activities (Boker & Martin, 2013). However, not much is known about how healthy older people stabilize their QoL in daily life and because QoL-stabilizing strategies are supposed to differ from QoL-changing or -enhancing strategies, it is worthwhile to make an effort towards the examination of their nature.

6.2 RESEARCH AIM

The main aim of the present study is to explore how older people with high QoL stabilize their QoL in daily life. Even though the *f*QoL-model makes suggestions about possible strategies to stabilize QoL over time, the present study takes a step backwards and asks healthy older people themselves about stabilizing processes from a naïve perspective. Thus, the study is first about the elicitation of concrete strategies that healthy older people apply to ensure the experience of high QoL day by day and second about the comparison of these

mentioned strategies with the stabilizing strategies inferred from the *f*QoL-model. In detail, the following questions are addressed:

1) How do participants evaluate their current QoL and how stable do they perceive the course of their QoL over the last five years?

2a) Are older people with high QoL capable of naming stabilizing strategies that they subjectively apply to maintain their QoL on a daily basis?

2b) If older people with high QoL are capable of naming stabilizing strategies, what kind of strategies do they apply to maintain a high level of QoL day by day?

2c) If older people with high QoL are capable of naming stabilizing strategies, are they comparable with the stabilizing strategies theoretically derived from the *f*QoL-model?

3) How do participants evaluate the extent to which they can actively influence the maintenance of their QoL?

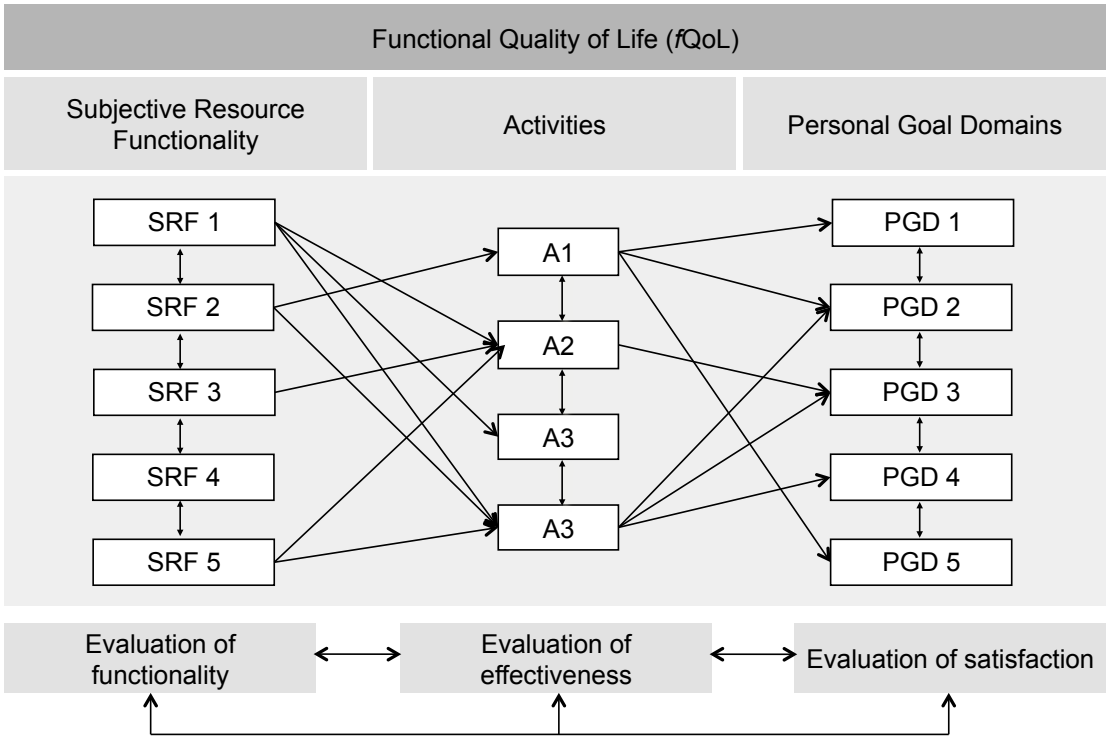

Figure 6. Functional Quality of Life (*f*QoL-)Model with regulating feedback loop

6.3 METHODS

In the present explorative cross-sectional study, 15 people were interviewed face-to-face using a semi-structured interview format. The interviews lasted approximately 90 minutes and were conducted by two trained researchers (including the author). Participants were recruited via e-mail register of the Center for Gerontology at the University of Zurich. Inclusion criteria were age >60, retired, high subjective QoL and good overall health. All interviews were recorded on an audio tape and transcribed thereafter.

Face-to-face interview: First of all, participants were asked to fill in a short questionnaire containing basic demographic variables as well as a global subjective evaluation of health and a global estimation of daily level of activity. Based on the assumption that strategies to stabilize QoL are not consciously represented (as stated in the introduction), participants were carefully introduced to the topic. To start conversation the personal interview began with a short informal talk about the living circumstances of the participant (e.g., health, partnership, housing situation, leisure activities). After that, participants were asked how they personally define QoL and how they evaluate their current QoL (on a Visual Analogue Scale from 0 to 100). If they did not report the maximal score of 100, they were asked what it is that lowers their QoL. In order to assess how experienced participants are with stable QoL and stabilizing QoL, respectively, they were asked to draw the course of their QoL over their lifespan from the age of ten until the current day (following Ferring & Fillip, 1997). For that purpose they received a piece of paper on which a grid was delineated. On the y-axis, QoL was depicted in 10-point distances (from 10 to 100) and on the x-axis age was depicted in 5-year distances (from 10 to 80). Participants were instructed to draw the curve intuitively and from their subjective and current point of view. After they had finished, phases of high, low and stable QoL were discussed to make the course of their QoL present. After this reflection (which was transcribed but not analyzed) the interviewer turned the focus to how participants currently ensure a high level of QoL day by day regardless of whether they experienced stable QoL in the preceding years or not. If participants did not understand the question or if they replied too briefly or imprecisely, the interviewer repeated or reworded the question to elicit as many strategies as possible. Finally, participants were asked to estimate to what extent he/she can affect the maintenance of his/her QoL (in percent) or to what extent it is predetermined by external causes (e.g., accident, coincidence or fate).

6.3.1 Analysis

In a first step, all voice records of the interviews were transcribed verbatim. Minor linguistic details (er's, mm's, etc.) were omitted, and names of people and places were replaced for reasons of anonymity. Although the interviews were conducted in Swiss-German, transcripts were written in standard German. All transcripts were coded (using TAMS Analyser Version 4.34b5ah-L) by the author. Due to the explorative purpose of the study, coding categories were defined incrementally during the analysis process. In a second step, the QoL graphs (on grids) were measured manually and transformed into values. Based on these values, an average curve was calculated, and participants were divided into two groups: those who experienced stable QoL in the last five years (changes in QoL of <=5 points) and those who experienced a change in QoL (changes of >5 points). All statistical analyses computed within this study were conducted with SPSS Version 20.

6.3.2 Sample

Eleven women (73.3%) and four men (26.7%) aged between 64 and 76 (M=68.7, SD=3.1) participated in the study. Although all participants were retired, 13 (86.7%) were working part-time or voluntarily. Five participants lived alone (33.3%), ten were in a partnership (66.7%) and all of them lived in the greater Zurich area. Participants were highly educated, most of them had at least a secondary school degree (n=12, 76.5%). Participants reported good overall health (M=85.0, SD=10.9) on a Visual Analogue Scale (ranging from 0 to 100) and they perceived themselves as fairly active in daily life on a 10-step Likert-scale (M=7.9, SD=1.2).

6.4 RESULTS

Although participants worded their definitions of QoL quite individually, the in-depth analysis highlighted that central QoL-determinants are comparable between participants and can be divided into a limited number of domains: Physical health, social relations, mental health, autonomy, activities, living situation and financial situation (Table 13). This indicates that participants based their responses on a similar notion of QoL, in that they defined QoL as a multidimensional construct that is determined by several areas of life. What is more, the contents of these domains are comparable to findings of previous studies (e.g., Browne et al., 1994; Brown & Flynn, 2004).

Furthermore, participants evaluated their QoL (single-item) fairly high at the time of the interview (*M*=90.6, *SD*=6.7, *range*=80-100). In response to the question of what it is that prevents them to evaluate their QoL with the maximal score, three participants claimed that maximal QoL does not exist and eight challenged whether it is desirable at all to achieve the highest possible QoL. However, with regard to particular reasons that caused a reduction in QoL, the following were mentioned (in parenthesis the number of participants): Lack of a partnership or problems with spouse (5), health restrictions (2), adverse living situations (2), dissatisfaction with own personality (2), worries about loved ones (1), disillusionment after retirement (1), lack of public security (1), impossibility of keeping a dog (1), restricted freedom in decision-making processes (1).

Table 13. QoL-determinants extracted from participants' subjective QoL-definitions

Life domains	QoL-determinants
Physical health	Being healthy, feeling well, health of loved ones, no dementia, accepting help and support
Social relations	Partner, family, acquaintance, having a good social network, drinking and eating in company, having lots of social contacts, living in harmony with others, not having arguments, visiting and inviting friends, sexuality
Mental health	Pursuing and achieving personal goals, being content with oneself, coping skills, interest, pleasure, satisfaction, intellectual stimulation, being curious, thinking positively, orientating in a new direction, self-management, emotional security, being able to let things go, being optimistic, being lucky, self-responsibility, having a fulfilling life
Autonomy	Autonomy, living independently, freedom, living as one pleases, living without coercion
Activities	Culture, participating in life, feeling useful, sharing experiences, music, traveling, voluntary engagement, hiking, reading, giving something back to society, having hobbies, social engagement, painting
Environment	Having enough living space, having a nice apartment, stimulating environment, living in Switzerland, less poverty, security, participation in political issues, beautiful landscape, good neighborhood
Financial situation	Enough financial means, living with a certain wealth, being able to afford things

With respect to the QoL-courses, participants were, in general, able to meet the invitation to draw them. Only one participant decided to describe the curve verbally and to delegate the drawing to the interviewer. As Figure 7 illustrates, the individual QoL-courses show unique processes, while the averaged course proceeds quiet evenly. This makes it clear that the averaged curve is hardly representative for single participants, even though two tendencies can be recognized: A small peak around the age of 25 that is in most cases associated with family foundation (not systematically analyzed) and a slight decrease at the

age of 60 that is in many cases associated with changes concerning retirement (not systematically analyzed). The more in-depth examination of the last five years revealed that seven participants (46.7%) experienced stable QoL, i.e., a change of 5 points or less and eight (53.3%) experienced changed QoL, i.e., a change of more than 5 points (*M*=12.0, *SD*=11.5, *range*=-7 to +28). Within the latter group only one participant experienced a decline in QoL (-7 points), while all others experienced positive changes (*n*=7, *M*=14.17, *SD*=9.30).

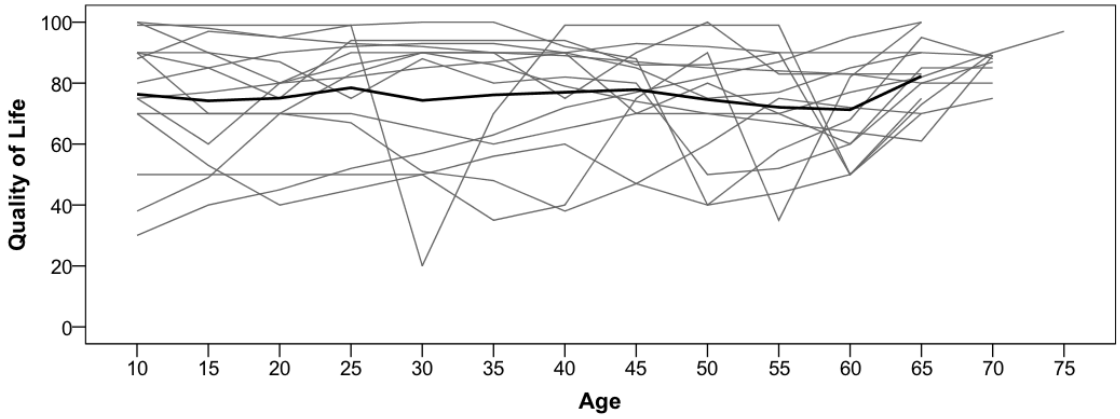

Figure 7. Subjective QoL-courses over lifespan drawn by participants in grey and averaged curve in black

In response to the question of what kind of QoL-stabilizing strategies participants apply to maintain their QoL on a daily basis, participants mentioned 87 strategies in total (Table 14). Six of them were mentioned twice and two were mentioned tree times (marked in Table 16). Every participant mentioned on average 6 strategies (*M*=5.9, *SD*=4.9, *range*=1-15). Although all of the participants named at least one QoL-stabilizing strategy, answering questions about strategic knowledge turned out to be challenging for them. Participants often answered with a general statement referring to the importance of keeping track of what they already do or have, so it was necessary to repeat and reword the question several times. But, finally, most participants were able to specify the strategies.

Table 14. Descriptive statistics of mentioned QoL-stabilizing strategies

Domain	Number of identified strategies*			Number of participants who mentioned strategies in this domain		
	Participants with stable QoL (*n*=7)	Participants with changed QoL (*n*=8)	Total	Participants with stable QoL (*n*=7)	Participants with changed QoL (*n*=8)	Total
General	2	5	7	2	5	7
Physical and mental health	7	12	19	4	4	8
Cognition	10	1	11	4	1	5
Relation	8	8	16	3	3	6
Environment	3	0	3	2	0	2
Activities	11	20	31	4	5	9
Total	41	46	87			

Note. *Including repeatedly mentioned strategies.

The in-depth analysis of the mentioned strategies revealed that almost all strategies could be assigned to one of the following domains: Physical and mental health, cognition, relations, environment and activities (Table).

Table 15. Overview of mentioned QoL-stabilizing strategies (in abbreviated form)

Domain	**Strategies of participants with stable QoL over the last five years (*n*=7)**	**Strategies of participants with changed QoL over the last five years (*n*=8)**
General	- Continue one's routine - Take things as they come	- Continue one's routine - Continuing with what one does or keeping what one has now (II) - Retaining autonomy in my own way (-) - Ensure that I am doing well
Physical and mental health	- Going to the fitness center - Moving physically - Keeping fit physically and mentally - Having more time to oneself - Not letting oneself go if one doesn't feel good - Treat oneself from time to time - Take pleasure in certain things	- Promoting one's health actively (III) - Not eating excessively - Not taking long-term medication where you need another medication to treat side effects - Not smoking - Not consuming an extensive amount of alcohol - Not eating too much meat - Buying groceries conscientiously and considering what it contains and where it comes from - Eating coconut oil because it is pure nourishment for the brain - Strength training that I'm sure I can keep up with - Exercise

Table 15. Overview of mentioned QoL-stabilizing strategies (in abbreviated form) (continued)

Domain	Strategies of participants with stable QoL over the last five years (*n*=7)	Strategies of participants with changed QoL over the last five years (*n*=8)
Cognition	- Planning so that children do not have to plan for me (II) - Dealing with old age - Finding interests in certain things - Planning and organizing well (II) - Self-responsibility and knowing that it is up to oneself - Being mentally active - Reflecting and considering the ratio between effort and gain (e.g., surgery) - Taking part in life and pursuing zeitgeist	- Be happy for each day that you can rise and be healthy or that you can complete without too many difficulties
Relations	- Chatting and discussing together - Being together at one table and drinking a glass of wine [spouse] - Having visitors - Helping daughters - Give pleasure and one will receive something in return - Contributing to the grandchildren's education - Maintaining relationships - Not only being around older people	- Trying to approach others even if they are repellent - Maintaining the relationship with a spouse so that it benefits both - Continue meeting with friends and other couples and dining out with them - Maintaining social network (II) - Having several friends with whom I can do different things - Maintaining social connections and not relying too much on husband (-) - Stay interesting for one's partner (-)
Environment	- Age-appropriate furnishing after children move-out (e.g., stair lift, broad doors) - Taking counsel regarding residence - Wheelchair-accessible apartment	
Activities	- Staying active - Keep working on something in order to not be out of the picture (e.g., voluntary engagement) - Creating art - Not being too convenient - Traveling (II) - Visiting concerts - Having a task, doing something where one can participate and where one feels useful, and like one is doing something meaningful - Engaging in voluntary tasks - Going outdoors - Having a hobby	- Staying active as long as possible by arranging things autonomously - Playing games - Hiking - Cinema - Theater - Opera - Folk dance - Travelling - Painting - Attending various courses - Attending English courses - Reading books and discuss them with friends - Concerts - Being proactive, not passive (II) - Listen to oneself and doing what one wants to do and what is important and good for oneself (III) - Going outside - Reading

Note. (-) Strategies of participant whose QoL declined in the last five years, (II) strategies that were mentioned twice, (III) strategies that were mentioned three times

Only seven strategies were of a general character and could thus not be allocated to any specific domain. However, most strategies were enumerated within the category of *activities* and *physical and mental health*. This finding is also reflected by the relatively high number of participants naming these strategies (see Table 14). The categorization of strategies into ones that were mentioned by participants with changed QoL and ones that were mentioned by participants with stable QoL showed that strategies referring to the two well-represented categories *physical and mental health* and *activities* were mainly named by participants who had experienced changed QoL. In contrast, strategies referring to cognition were largely named by those participants who had experienced stable QoL in the last five years. Strategies concerning relationships were mentioned equally in both groups, and strategies referring to environment seem to be of little relative importance for both groups. However, none of these differences in the number of strategies between participants with stable and changed QoL proved to be statistically significant (post hoc Fisher's exact test, results not presented here). Comparing the mentioned strategies with the strategies proposed by the *f*QoL-model (see Figure 6) first reveals that most mentioned strategies pertain to a person-environment-interaction. Even though relatively few strategies named by participants explicitly refer to the living environment, several strategies describe an exchange with environment (e.g., social contact with friends, children, grandchildren, cultural activities) and this confirms the assumption of the *f*QoL-model that stable QoL is the result of the managing ability of the individual to adjust goals, activities and resources to environmental conditions. Second, theoretically deduced strategies and strategies mentioned by participants correspond in the prevalence of activities. As the model suggests, what remains over time is the need for resource-regulating and goal-related activities. The mentioned strategies – and not only those that were assigned to the category of *activities* but also those that were assigned to *physical and mental health* and *relations* – mostly entail actions and this finding confirms that being active is the most important factor for stable QoL in healthy old age. Although evaluation processes of satisfaction, effectiveness and functionality are not explicitly represented in the mentioned strategies, some strategies can be interpreted as resource optimizing strategies, especially in the categories of *physical and mental health*, *social relations* and *cognition* (e.g., maintaining the relationship with a spouse so that it benefits both).

Finally, in response to the question of how much one can influence his/her own QoL, all participants named a percentage over 50 (M=74.0, SD=17.13, *range*=50-100).

6.5 DISCUSSION

In the course of demographic development and increasing life expectancy, the number of people spending their retirement in good health and with high QoL has increased over the last decades. These changes necessitate a rethink in research. The primary focus should no longer solely be laid on the examination of coping with changes in QoL (e.g., caused by losses), but also on factors and processes behind maintenance and stabilization of QoL. By asking fifteen older people with high QoL how they subjectively stabilize their QoL day by day, the present study makes an effort in this direction.

The capability of participants to name QoL-stabilizing strategies can be taken as a first indication of their existence. However, difficulties in the retrieval indicate that QoL-stabilizing strategies are not fully consciously represented – as assumed in the introduction – but are rather part of implicit knowledge. In the present study conversation was chosen as the eliciting method. It might well be that other assessment methods, for example, paradigms, hypothetical questions or the direct assessment of strategies in daily life (supported by new technologies, e.g., apps) would have retrieved more or other strategies. That strategies concerning *activities* proved to be of high importance for stabilizing QoL is in line with common QoL-operationalizations in literature (compare chapter 3.4). Activity-related strategies named by participants (e.g., travelling, going to cinema, meeting friends, having a meaningful task in life, being socially connected, being culturally or voluntarily engaged) is a reminder of the concept *active aging* – understood as a "continuing participation in social, economic, cultural, spiritual and civic affairs not just the ability to be physically active or to participate in the labor force" (WHO, 2002, p.12). Hence, active aging is to be considered as one important pillar of stabilizing QoL. However, according to the current findings, participating regularly in civic life is necessary but not sufficient for experiencing stable QoL. The results of this study suggest that stabilizing QoL also requires engagement in cognitive domains (e.g., anticipating the future), environment (e.g., age-appropriate furnishing) and social relations (e.g., maintaining a partnership).

The fact that participants with changed QoL predominantly named strategies concerning *activities*, whereas participants with stable QoL named strategies well distributed over different life domains, can be considered as a confirmation of the initially deduced assumption: Strategies of changing QoL differ from strategies of stabilizing QoL in that they are more likely to be invasive and immediately efficient (activities), whereas QoL-stabilizing strategies are supposed to be fine-tuned and regulative (e.g., cognitive strategies such as organizing, planning or anticipating life events). This is reasonable since individuals with low

QoL are likely to strive for a rapid enhancement of QoL and individuals with high QoL may want to defend the momentary status quo against minor disturbing influences.

A closer look at the numbers of participants who mentioned strategies within different domains makes it clear that neither a certain domain nor a specific strategy emerged as unique and pivotal for stabilizing QoL. Even the strategies in the two well-represented domains of *physical and mental health* and *activities* were only mentioned by a good half of the participants. Also taking into account that the individually defined QoL-definitions of participants differ to a certain degree, this indicates that stabilizing QoL is a highly individual process. Even though strategies could be found cumulated in certain domains, they proved to be highly idiosyncratic and will not be transformable to other individuals and life situations, respectively. On this basis it is clear that standardized interventions aiming at stabilizing QoL, evaluated with standardized measures, are unlikely to show positive effects on the subjective evaluations of QoL. Future research is therefore strongly needed to develop both individualized but still theory-driven interventions targeted at stabilize QoL and individualized instruments capable of capturing stabilizing effects on QoL on an individual level. Concerning this, advances have recently been made regarding individual approaches within interventions (Eschen et al., 2013; Clare et al., 2009) and statistical analyses (Sniehotta et al., 2012). In addition, the Functional Quality of Life (*f*QoL-)Model has proved to be a promising instrument in the previous chapters of this work that can provide a theoretical basis on which to develop individualized QoL-assessments.

The demand for an increased focus on within-subject approaches is also supported by the QoL-courses drawn by participants. Although the averaged curve appears as more or less even, the comparison of the fifteen individual courses detects great interindividual differences in terms of courses and amplitudes. This is in line with the results coming from the in-depth analysis of the well-being paradox: An even QoL-curve over lifespan can partly be interpreted as the result of adding up gains and losses (Schilling, 2003). Against this background the wellbeing-paradox no longer seems contra intuitive (Staudinger, 2000; Herschbach, 2002), but is more the result of a methodological issue, i.e., the result of aggregating individual values on a higher level. It is thus crucial for further research, especially in the realm of QoL-interventions, to recognize that averaged values are not predictive for individuals (Martin & Moor, 2012, Hamaker, 2012).

Finally, the present study provides two insightful findings regarding the subjective conceptualization of QoL of healthy older people with high QoL. First, participants explicitly stated that maximal QoL is not desirable. Based on the present data, the maximal QoL seems

to lay around 80 on a scale ranging from 0 to 100. Hence, according to the current data, QoL is presumably perceived as high if there is scope for enhancement, even if the individual never takes advantage of it. However, in reference to the highly individual nature of QoL, optimal QoL might differ between individuals. Bearing in mind the idea that satisfying QoL swings within a certain but individually defined range around a individually preferred equilibrium value (see Boker & Martin, 2013), rather than sticking to a particular optimal value, interventions should thus focus on strategic knowledge one can apply to ensure that QoL does neither exceed the upper nor fall below the lower individually set thresholds for a satisfying QoL. Thus again, QoL-enhancing interventions should focus on the empowerment of individuals to keep their QoL within their personally optimal range of QoL rather than on the plain enhancement of QoL. Second, participants stated that the characteristic of QoL lies, to a great extent, in the hands of the individual. With this, participants agree that QoL is a malleable construct that is accessible for dynamic adaptions and hence for QoL-optimizing interventions. Further endeavors regarding QoL-stabilizing interventions are thus reasonable and meaningful.

However, the present study suffers from several methodological limitations. First, due to the small sample size, the present results cannot be generalized. Studies with sufficient sample sizes are strongly needed to strengthen the significance of the findings in the present study. Second, the study sample was not randomly selected. But despite the non-representative sample, the fifteen older people participating in the study might be good advocates for today's generation in retirement due to their active lifestyle and their high level of education, health and QoL. Third, the findings are not verifiable by inter-rater-reliability. But this limitation might be attenuated by the fact that the results are solely grounded on basic qualitative analyses that are comprehensibly described and presented in tables. Finally, the cross-sectional study design provides only limited insights into the processes and mechanisms behind stable or stabilized QoL. Longitudinal studies are mandatory as well as new and innovative methods to assess stabilizing processes behind constant QoL, because most available measures usually do not provide information about what aspects and processes are responsible for changed or constant QoL over time.

6.6 CONCLUSION

Demographic changes will produce generations of old age that are well-equipped with resources (e.g., education, health, financials). Research should therefore increasingly focus on

the maintenance and stabilization of these resources of older people. Strengthening potentials and resources with appropriate interventions will support them in leading a self-determined and autonomous life. This, in turn, is not only beneficial for the expenditures in the health care system but also for society as a whole. By exploring how members of this upcoming generation of healthy and active older people stabilize their QoL in daily life, the present study can be considered as the first piece of a jigsaw in the new research field of stabilizing QoL. Although much further research is needed, the present data provide several starting points on which future studies can build on.

7 GENERAL DISCUSSION

7.1 SUMMARY OF STUDY RESULTS

As explained in the general introduction, QoL and healthy old age are central concepts in age-related research: QoL is a central outcome measure in psychological and medical intervention research and healthy old age is a life phase that has gained attention because it is experienced by a growing number of people. Due to the lack of a general agreement on what QoL is and due to the absence of well examined and validated theoretical frameworks, the overall aim of the present work was to progress in the conceptualization and measurement of QoL in healthy old age by introducing and exploring the new theoretical model of Functional Quality of Life (*f*QoL). The findings of the studies presented in the current work can be condensed as follows.

7.1.1 The Functional Quality of Life (*f*QoL-)Model

In chapter 2 the Functional Quality of Life (*f*QoL-)Model that had been developed to support researchers as well as professionals in assessing QoL from a person-centered perspective, was introduced. *F*QoL is defined as the subjective representation of the functionality of resources to perform activities that support personally relevant goal domains. Hence, *f*QoL describes the management ability of an individual to orchestrate evaluations of resource functionality, performance of necessary activities and satisfaction with personal goal domains. The *f*QoL-model merges the strength of two currently practiced approaches of measuring QoL – subjective life evaluation (sQoL) and objective resource measurement (oQoL) – by considering resources in terms of subjective evaluations of their functionality to perform goal-related activities. Thus, the *f*QoL-model encompasses three concepts whose correlations with QoL have widely been discussed in the literature, but that have not been unified in one conceptual model so far: Resources, activities, and personal goals. Central conceptual particularities of the *f*QoL-model – the multiple multidimensionality, the high degree of individuality and the systematic and conceptual integration of activities, personal goals and the interrelation between the *f*QoL-components – were worked out in chapter 3.1.1. Other unique characteristics of the *f*QoL-model are its action orientation and goal directedness. This

new and innovative way of conceptualizing QoL allows the consideration of idiosyncratic aspects determining the subjective perception of QoL and, as a result, the model is also an interesting framework for practical implementation. However, the *f*QoL-model, as it is presented in the current work, is a theoretical framework in an early stage of development and its introduction immediately posed questions about possible operationalization, matching with the QoL-definition of professionals and the target group (face validity), convergence with existing QoL-conceptualizations (congruent validity) and applicability in real life. These questions were addressed in the studies reported in the present work.

Regarding the operationalization of the *f*QoL-model, currently available QoL-measures that are appropriate to assess QoL in healthy old age were scrutinized in chapter 3 in order to work out how suitable they are to assess *f*QoL. Therefore, the conceptual particularities of the *f*QoL-model were confronted with the underlying QoL-understanding of these selected measures. Even though the analysis revealed that the *f*QoL-model and available measures correspond in basic assumptions regarding their QoL-conceptualization, such as multidimensionality and individualization, it became apparent that new measures are needed or current measures need to be revised in order to validly assess *f*QoL, especially regarding the systematic integration of personal goals, activities, environmental aspects and the interactions between components. However, among the analyzed QoL-instruments, the SEIQoL proved to be the most appropriate one to assess *f*QoL in healthy old age because it promotes an individualized assessment that allows the inclusion of environmental and activity-related QoL-determinants, albeit in a non-conceptual way.

The empirical approach towards the validation of the *f*QoL-model (chapter 4) showed first evidence for good face and congruent validity. On the one hand, face validity was explored in focus groups with professionals who reported that the *f*QoL-model partly represents their approach in daily life, but who also proposed adjustments and extensions of the *f*QoL-model. On the other hand, questionnaires used with healthy older people showed that they widely agree with statements derived from the *f*QoL-model. Congruent validity was examined with a number of questionnaires that allowed the comparison between *f*QoL (assessed with a newly developed *f*QoL-scale) and other existing instruments (global QoL-item, subjective QoL, health-related QoL, life satisfaction, tenacious goal pursuit and flexible goal adjustment). Statistical analyses showed consistent correlation patterns between these QoL-measures, implying that *f*QoL strongly correlates with existing conceptualizations of QoL. Another finding that emphasizes the validity of the *f*QoL-concept is that participants of the study in chapter 6 reported that QoL is widely determined by the person him-/herself and

only to a minor degree by external causes. That is to say, participants agree on the definition of *f*QoL as the result of the individual ability to produce it or, more precisely, to manage the match between resources, activities, and goal domains.

The examination of how well real life situations can be depicted in an *f*QoL-format (chapter 5) showed that healthy older people are in general able to provide information about personal goal domains and performed activities, and, with some difficulty, also about required resources and interrelations between these *f*QoL-components. Hence, the generation of personalized *f*QoL-portrayals was possible. The numeric analysis of personal goal domains and activities (resources and interrelations could not be evaluated due to incompleteness) revealed that participants named, at the most, five goal domains and 19 activities. This implies that *f*QoL of healthy older people should comprehensively be presentable with this limited number of components. The descriptive comparison of the personalized QoL-portrayals revealed great heterogeneity regarding number and content of goal domains and activities. In sum, the study showed that asking healthy older people about *f*QoL-components provides a comprehensive picture of idiosyncratic QoL-determinants.

7.1.2 The stabilization of QoL in daily life by healthy older people

Postulating that not only those older people who have recently experienced losses in their resources should be supported (with QoL-enhancing interventions) but also those with stable QoL (with QoL-stabilizing interventions) raised the fundamental question of how QoL can be stabilized. Hence, the last study of the present work asked older people with high QoL how they subjectively stabilize their QoL in daily life (chapter 6). The fact that, even though some participants had initial difficulties, all of them were finally able to explicate QoL-stabilizing strategies demonstrates that stabilizing strategies do exist, but that they are possibly part of individuals' implicit knowledge. Analyzing the mentioned strategies regarding whether participants had experienced stable or changed QoL in the last five years revealed that those with changed QoL (what was actually an enhancement in all but one case) reported more activity-related strategies. In comparison, those with stable QoL reported more cognitive strategies. This is a first indication that enhancing QoL requires different strategies than stabilizing QoL, i.e., enhancing QoL requires immediate and action-related strategies and stabilizing QoL requires more cognitive regulation strategies. However, none of the mentioned strategies turned out to be particularly important for stable QoL. This indicates that stabilizing QoL is an individual process that shows great interpersonal variability, comparable to the personalized QoL-portrayals in the application study. In accord with these results, the

stabilization of a person's QoL with interventional measures demands individually tailored strategies matching the specific living situation of a person. The finding that healthy older people perceive QoL as a malleable construct that they can shape emphasizes that QoL might be accessible for interventions and education. However, asking older people to retrospectively report applied strategies is only one possibility of eliciting stabilizing strategies and it is likely that different methods would have resulted in different findings.

7.2 DISCUSSION OF STUDY RESULTS

Overall, the studies presented in the current work reveal the large interindividual variability in defining, determining and stabilizing QoL. Subjective QoL-definitions, personalized *f*QoL-portrayals, QoL-stabilizing strategies and individual QoL-courses over an individual's life span all emphasize the unlikeliness of two identical QoL definitions or two sets of exactly the same QoL-constituents in healthy older persons. This is indicative for the capability of the *f*QoL-model to incorporate idiosyncratic life aspects into the structures of a theoretical framework. The *f*QoL-model succeeds in managing the balancing act between a totally individual definition that could only be operationalized with a global item, and an utterly standardized definition that would not allow an individually valid QoL-assessment. Hence, the main finding of the current work is that the *f*QoL-model enables standardized assessment of highly individual data.

Since all studies reported in the present work entail basic steps in examining the *f*QoL-model, discussing their results is mostly about looking ahead at what further needs to be done. However, recognizing that the *f*QoL-model is a promising theoretical framework encourages further investigation of the construct of *f*QoL. The most important aspects that should be addressed in future research are subsequently discussed.

First, in the present work the model was explored as it was theoretically developed. Although the feedbacks of professionals attending the focus groups support the conclusion that the *f*QoL-model could be implemented in practical work, the major recommendations for revising the model are worth considering. The three main criticisms that emerged were the neglect of systemic aspects (e.g., intentions of close relatives that influence goals or activities of the older person, or structural conditions of a living situation that confine goal domains or activities), the disregard of functionality estimations of a third person regarding available resources (since, according to the professionals' experiences, older people tend to

overestimate the functionality of their resources) and the omission of the possibility that activities can be performed by a third person. Noting that these suggestions come from professionals that predominantly deal with impaired, i.e., not healthy, older people, the suggestions for further development of the *f*QoL-model are not immediately important for a valid depiction of QoL in healthy old age. However, aging is still the biggest risk for suffering losses in resources. Bearing in mind that supporting healthy older people in stabilizing their *f*QoL in the long term requires repeated assessments over time, it would be advisable to consider the comments since an *f*QoL-model revised according to the professionals' suggestions would allow QoL-assessments irrespective of the person's resource status. One possible revision of the original *f*QoL-model is presented in Figure 8. The integration of environmental circumstances and influences, proxy-performed activities and proxy-estimated resource functionality allow a more detailed and thus more comprehensive picture of a person's QoL (e.g., divergences between self- and proxy-rated resource functionality, self- and proxy-performed activities and environmental influences). With these additional variables, changes in QoL and the associated compensation processes can be documented in greater detail (e.g., activities that are no longer performed by the individual but by the spouse). As a consequence thereof, supporting healthy older people in stabilizing their QoL would be possible in a more individually tailored way.

The personalized fQoL-portrayals in chapter 5.4 demonstrate how complex and numerous fQoL-determinants can be and that it is difficult to assess QoL-components comprehensively. This will become even more accentuated with the revised *f*QoL-model which encompasses a greater number of variables. One possibility to reduce the complexity of personalized *f*QoL-portrayals and to simplify the assessment procedure is to focus on one particular life domain (depending on the life context, e.g., problematic life domains) such as health, social relations, or leisure. With such domain-specific definitions of personal goal domains, activities and resources, more detailed pictures of *f*QoL-relevant life domains would be possible. Beyond this, the first draft of a revised *f*QoL-model presented in Figure 8 rests upon statements by a mixed group of professionals. It might well be that a more homogenous group of experts (e.g., psychotherapists, occupational therapists) would have resulted in different propositions. Further developmental work should thus preferably be embedded in close cooperation with presumed end users. Collaborating with a well-defined group of experts would not only lead to a version of the *f*QoL-model that meets the specific needs of the end users but that would also be more appropriate for valid QoL-assessment in the corresponding target group. And this, in turn, would raise the face and external validity of

such a revised version of the *f*QoL-model. Now that first evidence regarding the validity and applicability of the *f*QoL-model is given, this might be the most fruitful way to proceed regarding future implementation of the *f*QoL-model in practical work. Furthermore, cooperating with professionals is in line with the claims of participatory research methods.

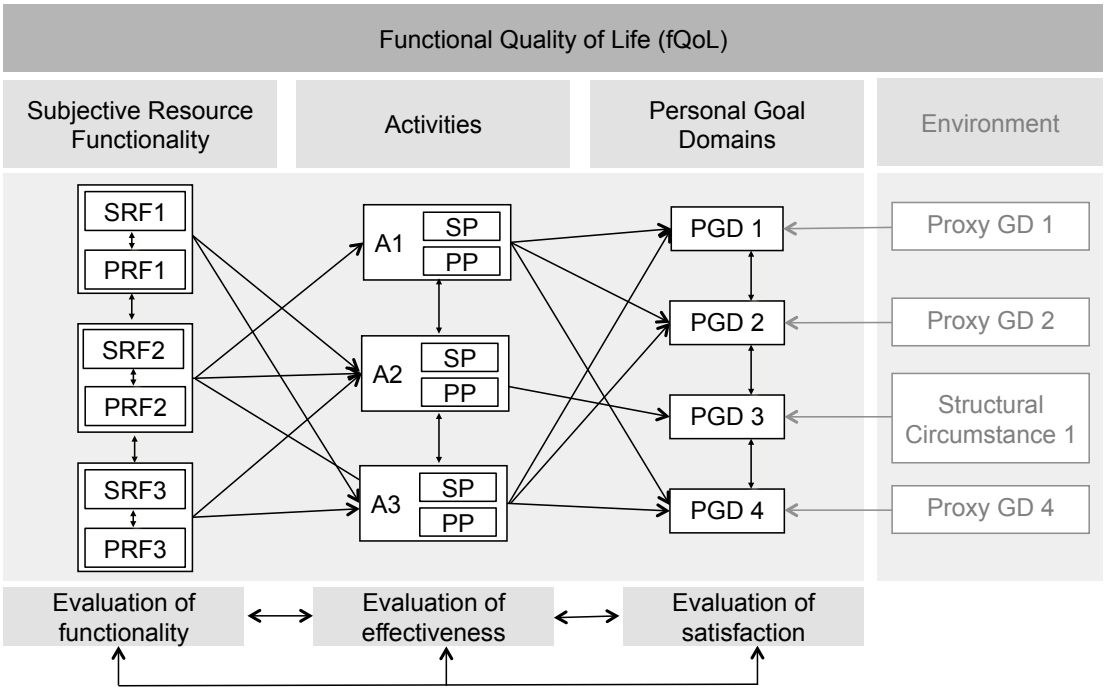

Figure 8. Revised Functional Quality of Life (*f*QoL-)Model (PRF=proxy resource functionality, SP=self-performed, PP=proxy-performed, proxy GD=proxy goal domain)

Second, the *f*QoL-model was originally introduced as an alternative to the approaches of subjective life evaluation (sQoL) and objective resource measurement (oQoL) that are currently available to estimate the effectiveness of QoL-enhancing interventions. In order to prove how these three approaches differ in their evaluations of effectiveness, the transformation of *f*QoL-components into numerical values is inevitably necessary. Even though the SEIQoL proved to fit best with the *f*QoL-model among existing measures, further developments regarding the assessment of *f*QoL are needed. The newly developed *fQoL*-scale represents a first step in this direction. Even though the *f*QoL-scale is a very global measure that does not assess single characteristics of *f*QoL-components but the quality of their match in terms of the individual ability to manage the fit between personal goals and resources, it

would be interesting to apply the scale in a pre- and post-assessment and to compare the results with sQoL and oQoL-scores. But since the results of the validation study (chapter 4) revealed that *f*QoL-scores are highly correlated with sQoL-scores (e.g., life satisfaction), it is indicated to pursue other possibilities of operationalizing *f*QoL, e.g., the establishment of a calculation model. The *f*QoL-calculation model proposed by Schneider (2014) is based on what an individual actually has and does (resources and activities) and what an individual intends to have and do in future (goal domains). With this, the *f*QoL-model is in line with the often-cited definition of QoL as the gap between the current status and expectations, hopes and aspirations (e.g., Calman, 1984). Scores of the actual status are calculated by functionality judgments and compatibility evaluations of activities, and scores of the intended status are calculated by the number and similarity of goal domains. These two scores are then computed to a single value. With such a calculation model, mathematical simulations, as proposed by Butler (2011), can be conducted. For this purpose it is useful to know that healthy older people name on average four life domains and 14 activities (chapter 5.4) in order to appropriately determine the number of variables integrated in a calculator. To assess the data needed for calculating such an *f*QoL-score, corresponding questions, e.g., about subjective functionality of certain resources (e.g., on a10-step scale), mutual compatibility of activities evaluated (e.g., in a matrix) or similarity of personal goal domains (e.g., also in a matrix), could be added to the standardized interview that was applied in the study in chapter 5. However, bearing in mind that participants of this study were tendentially overwhelmed by the task of naming resources and interrelations, asking about functionality, compatibility and similarity is likely to be too difficult and alternatives should be considered (e.g., computer based calculation of similarities). However, as soon as it is possible to express *f*QoL and its components, respectively, in numeric values, statistical models, as a third approach to exploring complex issues (Butler, 2011) can be calculated. Apart from that, it will be possible to empirically test predictions deduced from the *f*QoL-model (chapter 2.4) that do not necessarily encompass the model as a whole but often pertain to parts of it (e.g., correlation between number of goal domains and perceived global *f*QoL or effects of goal-relatedness of activities on *f*QoL). In any case, a sound operationalization and subsequently the comparison of different examination approaches (graphical illustration, mathematical simulation and statistical model fitting) and evaluation approaches (*f*QoL, oQoL, sQoL) would lead to insightful knowledge regarding further development of the *f*QoL-model and new research questions regarding future examination of the *f*QoL-concept.

Third, as explained in the general introduction, demographic developments necessitate rethinking the research aims of developmental psychology. Research should not only focus on factors that cause changes in QoL, but increasingly also on reasons that are responsible for stable QoL. The finding reported in chapter 6.4 that healthy older people consider maximal QoL as nothing desirable supports this claim by underlining that enhancing QoL is not indicated anymore when a certain level of QoL exists. But even though the application study in chapter 5 illustrated that the fQoL-model provides a comprehensive picture of the living situation of a particular individual, it is not yet a dynamic model, meaning that it cannot explain how and according to what kind of rules fQoL-components change over time. From a longitudinal perspective this means that changes can be assessed but not explained. The expansion of the fQoL-model with a feedback loop (Figure 6) allows predictions about stabilizing processes behind constant QoL over time that were tested in chapter 6. The results of this study neither confirmed the stabilizing processes assumed by the expanded version of the fQoL-model nor did they disclose one or a set of strategies as especially important for stable QoL. Although these results can be interpreted as evidence for the existence of QoL-stabilizing strategies and as an indicator for great interindividual variability in stabilizing processes, further studies with larger and more representative sample sizes are needed for a better understanding of how QoL is stabilized by healthy older people. When such studies are conducted and profound knowledge about QoL-stabilizing strategies is available, preventive interventions can be developed to help healthy older people enlarge their repertory of QoL-stabilizing strategies and educate them in applying them.

Fourth, as we know from a study of the present work, healthy older people perceive QoL as something that they can widely influence and regulate (chapter 6.4). Interventions are thus indicated and meaningful. That healthy older people generally experience a high level of QoL implies that interventions should address the preventive stabilization of QoL rather than rehabilitative enhancement. This also means that QoL is not only to be understood as an outcome measure to prove the effectiveness of any intervention, but also as a concept based on which interventions can explicitly be constructed, e.g., by deducing interventional measures from (individualized) *f*QoL-models. The development of such (individual-tailored) interventions aimed at the stabilization of QoL should be a central goal of further applied research that would help to close one major gap in research that is not one of knowledge but one of implementation (Fernández-Ballesteros et al., 2009). Looking through existing interventional programs in medical and psychological research fields makes it clear that there

is in fact scope for interventional concepts directly targeted at the QoL of people that preventively want to ensure a stable QoL over the course of their life. Hereto, the *f*QoL-model can serve as an orientating theoretical basis on which interventional measures can be tailored to the specific concerns, needs and living situation of the individual and with which effects can be monitored over time. The repeated assessment of *f*QoL-components would unfold displacements within and between them (subjective evaluations of self- and proxy-perceived resource functionality, self- and proxy-performed required activities, personal goals with associated influences and their interrelations). Once a calculation model – as described above – is available, it would be possible to simulate the impact of a certain intervention (e.g., diversification of goal domains, enhancement of subjectively perceived resource functionality) on other *f*QoL-components as well as on the global *f*QoL-score. The possibility of such simulations would in turn facilitate the customization of interventional measures.

Although high QoL is unlikely to arouse consciousness for the need of actively stabilizing QoL, as discussed in chapter 6.1, offering, e.g., psychoeducation, for a timely stabilization of QoL might increase the awareness of health professionals and healthy older people themselves for the opportunity and importance to actively influence and stabilize QoL. The timely implementation of QoL-stabilizing interventions would equip healthy older people with knowledge and strategies that enhance their resilience in cases of losses. In this way such interventions could increase an individual's adaptive potential that ensures a continuous course of a high level of QoL throughout old age.

However, developing and conducting new interventional programs requires evaluation studies to explore their implementability and effectiveness in a particular population at a certain point in time. The evaluation of QoL-stabilizing interventions means a methodological challenge because it implies that the demonstration of absence of changes in QoL (global scores or component-specific scores) can be ascribed to the intervention.

7.3 METHODOLOGICAL CONSIDERATIONS

For the present work, the approach of graphical models was chosen to examine QoL in healthy old age. This choice implied specific characteristics of the study that were conducted, namely small research units, small sample sizes and qualitative research methods proved to be reasonable. The small research units presented in this work allowed the addressing of three different but equally important aspects of the *f*QoL-model – operationalization, validity and applicability. Therewith, three basic questions could initially be explored and a first empirical

basis could be generated on which the direction of further research projects can be determined. Small sample sizes proved to be sufficient to show that the generation of personalized *f*QoL-portrayals is basically possibly. However, further research with larger sample sizes is necessary, especially regarding convergent validity and stabilizing strategies. And finally, qualitative research methods also turned out to be appropriate at such an early stage of model proving, particularly in order to get a first impression of how good healthy older people are in providing information about resources, activities, goal domains and QoL-stabilizing strategies. Hereto the qualitative approaches enabled valuable insights regarding where healthy older people had difficulties in answering questions about *f*QoL-components and this allows the revision of the asking format in further research. However, the examination of a graphical model (in this case the *f*QoL-model) is only one approach to explore a complex research field (in this case QoL in healthy old age). As explained in the general introduction, there are at least two other ways (Butler, 2011), namely mathematical simulations and statistical model fitting. These three approaches are to be understood as complementary and not mutually exclusive. Thus the present work provides basic data on which further research referring to mathematical simulation or statistical models can be initiated.

The methodological approach of the present work emphasizes the importance of two particular aspects that are still widely neglected in gerontological research: First, the adoption of an individualized perspective and, second, the integration of relevant stakeholder groups in research processes. An individualized perspective in age-related QoL-research and in gerontological research in general is pivotal since healthy old age is a very heterogeneous life phase as illustrated by the study results of the present work. Especially for a timely and economic transfer of research results into practical contexts, which are inherently individual-centered in gerontology, such a perspective is inevitable. Regarding the implementation of research findings in practice, the use of participatory research methods is also fundamental. The inclusion of relevant stakeholder groups in the research process is vital for progresses in the research field of QoL in healthy old age for at least three reasons. First, if representatives of relevant stakeholder groups, i.e., potential end-users of empirical findings, had the opportunity to co-create research, their willingness to accept and integrate new findings into daily work will be higher. Second, combining traditional with participatory research methods would facilitate the anchorage of new knowledge in practice, because potential end-users know that there is ongoing research and they can finally operate as multipliers. And third,

with the integration of stakeholders it can be ensured that results are presented in a language that is understood by professionals and members of the target group and that results are thus viable for the intended end-users.

Since the studies reported in the present work all embody initial endeavors to empirically approach a new QoL-conceptualization, methodological limitations are not that substantial. However, the non-representativeness of the study population is an obvious shortcoming, especially regarding the study about QoL-stabilizing strategies, and this needs to be addressed in further projects. With respect to the target group of healthy older people, the question arises of what kinds of attributes are immanent in a typical representative of healthy older people? Following the WHO health definition (2006) and the WHO definition of active aging (2002), he/she feels physically, mentally and socially healthy including an active participation in social life. Except for the unbalanced gender ratio, participants of the studies reported in this work might therefore be good representatives for today's generation of healthy and active older people.

7.4 CONCLUSION

Due to a long and interdisciplinary research history, QoL-research in old age is a fragmented field that lacks well explored and validated theoretical frameworks. Since QoL in healthy old age is a comparatively young research field, the present work makes a valuable contribution to a sound conceptualization of QoL by introducing and exploring a new theoretical model, which might help to initiate, organize and structure future research.

The introduced *f*QoL-model comprises a new conceptualization of QoL. By including personal expectations and intentions in terms of personal goal domains and the corresponding activities and resources, the model allows an individualized assessment of QoL, which is particularly crucial in a person-centered research field such as gerontology. Furthermore, the *f*QoL-model provides at the same time a framework for a standardized and thus empirically useful QoL-assessment and a basic framework to derive individualized interventional measures in practical contexts.

The results of the studies presented in this work demonstrate that it is a promising theoretical framework for empirical as well as practical purposes and that it is worth investing more effort in its examination and its further development. This is encouraging, even though all of these studies encompass basic steps in exploring this new *f*QoL-model. Consequently,

there is much left to be done. The very next steps should entail a deliberate operationalization of the revised version of the *f*QoL-model – that was developed based on the findings of the present work – to validly and reliably measure *f*QoL. This is particularly important to examine the concept of *f*QoL and the *f*QoL-model in greater detail and this in turn is really needed in a research field that is generally lacking in well examined and validated theoretical models.

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